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The Kentucky Long-Term Policy Research Center was created by the General Assembly in 1992 to bring a broader context to the decision-making process. The Center's mission is to illuminate the long-range implications of current policies, emerging issues, and trends influencing the Commonwealth's future. The Center has a responsibility to identify and study issues of long-term significance to the Commonwealth and to serve as a mechanism for coordinating resources and groups to focus on long-range planning.

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THE CONTEXT OF CHANGE

TRENDS, INNOVATIONS AND FORCES
AFFECTING KENTUCKY'S FUTURE

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with
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THE KENTUCKY LONG-TERM POLICY RESEARCH CENTER

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FOREWORD

On behalf of the Board of Directors and staff of the Kentucky Long-Term Policy Research Center, I am honored to present the Center's first Biennial Trends Report, *The Context of Change*. Please view this product as a living document with major implications; it is a commencement rather than a consummation. The legislation that founded the Center requires the preparation of a biennial report on trends affecting the Commonwealth and the long-term implications of those trends. Further, it requires that the report shall be given affirmative consideration by the agencies and branches of state government when determining budget priorities.

The purpose of the Center, a joint legislative-executive body, is to bring a long-term perspective to policy development and legislative initiatives. We use a variety of methods to discern trends, both established and emerging, which impact Kentucky's future. We then identify policy and legislative options for response to these trends and make recommendations as to the responses that are most likely to produce long-term benefits. The significance of these trends must not be underestimated; they will define our state over the next several years, shaping and molding the social and economic environment in which the people of Kentucky will live.

We direct resources toward issues that have a broad impact and will exert positive leverage on the economic and social capital of the Commonwealth. We intend to examine issues that will permit us to make a measurable difference through further study, coordination of resources or recommended changes in policy. Kentucky's policymakers must be aware of trends even when we are seemingly unable to reverse or deflect them, to enable effective adaptation via legislative and policy initiatives.

Our choices and actions today largely determine our future. To use an avian analogy, we could choose to behave like ostriches, ignoring what is happening around us, to our ultimate detriment. However, it is our belief that we should work together to achieve sustainable results, thereby choosing to behave like flamingos. These beautiful birds labor long and hard to become airborne, but once they have escaped those earthly bonds, they enjoy beautiful, graceful, sustained flight to their desired objective. This exemplifies our model of sustainability (meeting current needs without jeopardizing the ability of future generations to meet their own needs) in future-oriented decision-making.

We recognize that trends are malleable, so we *can* exercise leverage by making choices and decisions today that will positively influence our future. In that spirit, we trust you will find this report enlightening, challenging and useful.

DR. FORREST W. CALICO
CHAIR OF THE BOARD

INTRODUCTION

Several hundred Kentuckians have participated in the development of this report. Contributions have ranged from experts lending their knowledge about important trends affecting the state to citizens reacting to synthesized information at public forums. This broad base of involvement has resulted in the identification of the three principal themes around which this report is organized: The Community of Tomorrow; The Pursuit of Prosperity; and The Foundation for Progress.

To arrive at these themes, the Center's first task was to identify the main factors affecting Kentucky's future. The Center requested "white papers" from more than 300 experts in the broad areas of economics, demographics, politics, science, technology, society and the environment. The experts were asked to do three things with their papers: 1) identify the current trends in their area of expertise; 2) place these trends in a historical context; and 3) suggest the elements of change they believe will exert the most influence on Kentucky's future. The Center received 116 expert papers. The data and trends presented in the white papers were then synthesized with information obtained from other published sources.

To ensure that all of the important dimensions affecting Kentucky's future were identified, an open-ended questionnaire was developed and sent to a group of Kentuckians, including, but not limited to, legislators, members of the Governor's cabinet, mayors, county judge-executives, and several university professors. More than 230 individuals responded by submitting over 1,400 questions about Kentucky's future. The most frequently asked questions centered on Kentucky's education system, tobacco, politics, the environment, coal, jobs and income. The Center used these questions to help identify the dimensions that are likely to characterize the future of the state.

Another major avenue for identifying emerging trends is through the Center's statewide scanning program, *Scanning Kentucky*. Scanning is the systematic review of sources of information for signposts of change. A scan is essentially information that has implications for the future. It could be all or part of a newspaper, magazine or journal article; a speech; a television program topic; a radio program discussion; survey results; or observed signals of change. During the course of the research for this report, more than 250 scans were submitted to the Center by citizens around the state.

The Center synthesized all of this information and produced draft reports that were formally reviewed by individuals with expertise in the subject area. The Center also invited numerous experts to participate in three workshops or round table discussions designed to evaluate the trends outlined in the drafts.

Finally, the Center presented information on these trends to approximately 300 citizens who attended one or more of 15 public forums around the state. The Center also sponsored a conference, *Planning Strategically for Kentucky's Future*, that was attended by more than 100 Kentuckians. This conference was designed to generate discussion about the trends and solicit ideas on how to deal with them.

In short, several hundred Kentuckians have participated in some fashion to the process of creating and refining this report. It is this broad base of involvement and participation that, we believe, constitutes the underlying value of this endeavor.

MICHAEL T. CHILDRESS
EXECUTIVE DIRECTOR

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SUMMARY

This inaugural biennial trends report of the Kentucky Long-Term Policy Research Center examines three broad topics. First, we outline some of the demographic trends that are likely to influence the people and the families who will form the communities of tomorrow. Secondly, we turn to an array of changes that are shifting the economic floor beneath Kentuckians and increasing the difficulty and the complexity of the pursuit of prosperity. Finally, we discuss some of the many cornerstones that provide an effective foundation for progress, including both physical infrastructure and increasingly important human potential.

THE COMMUNITY OF TOMORROW

Demographic trends that have gathered momentum over the past two decades suggest the communities of the 21st Century will look quite different from those of today. They will have adapted in many ways to meet the needs of more older citizens, fewer young people, and continued change in family structures. While most observers agree that families will survive the present test of their limits and remain central to our culture, the fundamental reshaping of the family will likely persist.

The People of Kentucky

While surprising new expansion of Kentucky's population has occurred in the 1990s, demographers do not expect it to persist. Instead, underlying trends suggest that Kentucky will experience only moderate population growth in the years to come, in spite of the high rate of growth it has enjoyed in the early 1990s. The stagnation of Kentucky's population during the 1980s, which is largely attributable to substantial out migration, particularly among young people, poses questions about the viability of Kentucky's future labor force.

The homogeneity of Kentucky's population has also persisted in recent years, a trend that may not bode well for the almost certain advance of globalization of commerce, which will demand high levels of comfort with diverse peoples and cultures. States that are perceived as economically or socially inhospitable to minorities may risk accelerated decline in their minority populations and, in turn, undermine their competitiveness.

In an era of increasing urbanization, attended by problems of congestion, crime and pollution, Kentucky is expected to retain its essentially rural character for some time to come and, as a consequence, delay or avoid the arrival of some of the problems urbanization brings. The beauty and the quality of life this rural strength enables may hold enormous future appeal for those in flight from urban congestion and crime.

Changing Family Structures

The families of our nation and our state are changing. Social and economic forces have not only influenced their shape but how and when they are formed. In Kentucky, we marry — and divorce — more often than the nation as a whole, multiplying uncertainty in the lives of children. The increased incidence of divorce and a growing number of births to unmarried women mean that more children live in households headed by single parents, who are much more likely to be poor. As more nuclear families have fragmented, the number of non-family households, those occupied by singles or unrelated individuals, has risen dramatically.

A combination of factors is influencing our population and the family structures it forms, but none is more pronounced than the state's sharply declining birth rate. Contrary to stereotypes, Kentucky registered the 49th lowest birth rate in the nation during the 1980s, signaling the strong possibility of continued population decline. The natural extension of that trend was a sharp decline in the state's population of young people under age 18. Only two states lost a greater percentage of young people than Kentucky.

As more of us choose to live alone and families continue to fragment, the number of households has risen while the number of people living in them has declined. While household formation continues to outpace population growth, the trend actually peaked in the 1970s. Nevertheless, the rapid expansion of households has triggered widespread, if belated, attention to the implications for families, the environment and a fraying community fabric.

Older and Wiser?

Perhaps the most striking population trend, one that will persist and deepen over the first half of the 21st Century, is the aging of our population, revealed in an emerging middle-age population bulge, the result of a decrease in the number of Kentucky children and an increase in those in their middle and older years. The implications for the future of Kentucky, as well as the nation as a whole, are among the most far reaching that lie before us. This fundamental change in our population, which is occurring at a faster pace in Kentucky than in most states, will profoundly influence the way we work and live.

Because older Kentuckians are disproportionately poor, the aging of our population may be attended by expanded poverty. Rural states like Kentucky are often strained to provide much needed support services for older people, for which the demand is certain to expand.

Generations at Odds

Unless wisely countered with thoughtful public policy, converging economic and demographic trends may exacerbate tensions between the generations in the years to come. The conflicting economic and social interests of young and old are pushing the issue of generational equity, the distribution of public resources in terms of need rather than age, higher on the public agenda, in spite of the attendant political risk.

THE PURSUIT OF PROSPERITY

In recent years, virtually unlimited global competition has placed extraordinary demands on business and industry and, in turn, on workers, who have scrambled to build higher quality products, in less time, at a lower cost. At the same time, the long heralded Information Age has arrived and exerted a powerful influence on the way we work and live. While some of the changes these forces are propelling promise to liberate and empower workers, others threaten to diminish the ability of many to participate in the economic and social mainstream of this nation. The transformation now underway is believed to be structural and systemic in nature; it will exert significant influence on the bedrock industries of Kentucky. Few doubt that it will be attended by pain, as well as the exhilaration of discovery and enlightenment.

Changing Paradigms

The extraordinary era in which we live is characterized by rapid change driven by technology and our ongoing struggle to harness it and adapt to the consequences of its broad-based application. It has abbreviated the distance between points around the world, advanced global commerce, and forced a reckoning with assumptions about the organization and

conduct of work. At the same time, it has raised the skills ante to new, ever rising heights that are making flexibility and lifelong education a growing imperative. While painful to those left behind, technology is accelerating the rate of change and creating an explosion of opportunities for highly skilled workers and innovative firms.

Today, a seemingly limitless world marketplace is challenging Kentucky firms and their employees to meet rising product and performance goals. However, if Kentucky is to make the most of these opportunities, it must explore ways to improve the ability of its organizations, its managers and its workforce.

A Shifting Economic Floor

Historically, Kentucky's economy has depended heavily on the core industries of mining, agriculture, and manufacturing, each of which are being transformed by a combination of forces. While mining and agriculture remain vital to the economic well-being of the state, both industries face uncertain long-term prospects. Likewise, in spite of emerging strength, manufacturing employment is predicted to decline over the long-term. As a consequence of these anticipated changes, the Commonwealth's future economic prosperity will hinge on its ability to successfully negotiate a shifting economic landscape, to anticipate coming changes and skillfully manage them. Without Information Age prowess, for example, Kentucky's future will likely yield more of the same persistent poverty that has for too long defined who we are.

While Kentucky's coal industry has logged record production levels in recent years, employment in this high-wage industry has fallen sharply, largely as a consequence of technological advancements and the consolidation or closure of mine operations. Over the long term, rising environmentalism and the implementation of current and anticipated regulations complicate the utilization of Kentucky's coal reserve. Moreover, some studies suggest that mining may approaching its historic peak in Kentucky, one that could be followed by declining production.

In decline by several measures, including employment, farm population and cultivated land, Kentucky's farm economy nevertheless enjoys record output, as farming methods and equipment advance productivity. However, the vulnerability of its key crop — tobacco — has created significant uncertainty. The future of burley tobacco, which is being influenced by declining use and increased imports of leaf, presents the most significant threat to farming and farmers in the state.

Predicted to decline nationally in coming years, manufacturing nevertheless is making dramatic gains in Kentucky's economy, outpacing the nation in terms of jobs and gross product. Kentucky produces a diverse range of manufacturing products; however, the predominance of small, often insufficiently capitalized firms, an inadequate base of intellectual capital, skilled workers, and technological know-how may inhibit our ability to compete in the global marketplace. The advancement of the automobile industry in Kentucky, however, bodes well for the future.

Kentucky hardwoods are prominent in the U.S. marketplace, but the virtual absence of an important second tier of value-added wood products industries prevents the state from capturing the full benefit of this abundant resource. Approximately 70 to 75 percent of the 700 million board feet of grade lumber cut here annually is shipped out of state in an unprocessed state. Development of the enormous potential the secondary wood industry holds for Kentucky's long-term economic prospects will require investment in expertise, entrepreneurial initiatives, and careful attention to the cultivation of an ethic of stewardship that will help sustain this abundant resource.

As our population ages, the store of historical sites in Kentucky and the state's ready accessibility are expected to increase its appeal to tourists, magnifying the economic benefit of

tourism to Kentucky. While it is viewed as a viable, sustainable option for the development of rural communities, tourism has not proven to be an antidote to poverty. The seasonal and marginal quality of the jobs it creates often do not produce returns in the lives of those who work in this industry. Successful development strategies should maximize local involvement in order to increase opportunities for Kentuckians to own and operate businesses and create important, complementary industries to counter the cyclical nature of tourism.

Small enterprises are expected to be the engine of our future economy, fueled by expertise, capital and a broad-based commitment to their development. As the small-business sector of the economy continues to create the lion's share of new opportunities, the importance of enabling entrepreneurs rises. Much of the state's future success in cultivating small enterprises and the opportunities they will yield hinges on the availability of expertise — managerial and technical — and capital.

While human resources will be critical to Kentucky's ability to use and apply technology to create opportunities, existent and expanding infrastructure, particularly Kentucky's planned Information Superhighway, may offer points of leverage. They include the possibility of exploiting new opportunities in communications, pharmaceuticals, biotechnology, environmental remediation, and advanced materials.

Chasing the Dream

While we are making previously unimagined gains in technology, product development and the management of human resources, the gap between those who have and those who do not has not narrowed. For many workers, the American Dream has become more elusive and the pursuit of it a frantic chase. The employer-employee contract is becoming more tenuous, as firms meet global competition with fewer, less costly employees, many of whom work part-time or on a contingency basis. Wages have stagnated and, at the same time, employee benefit packages are shrinking or disappearing. The notion of lifetime employment is now widely viewed as an anachronism, and hard work is no longer an assurance of anything. Pressed to close widening economic gaps, families are experiencing an increasing poverty of time and money that is affecting both their viability and stability. Many Americans work but remain poor.

In Kentucky, rising levels of contingency employment, the ascendance of low-wage industries, a reciprocal decline of high-wage industries, low labor force participation, and the types and the mix of jobs industry is bringing to the state are influencing wage levels and opportunities. As a result, the percentage of poor working families in Kentucky grew during the 1980s and continued to exceed that of the nation as whole.

Increasingly, economists view deepening disadvantage as a problem with broad-based implications. Falling U.S. wages have been accompanied by the rise of income inequality and what many analysts believe is a shrinking middle class. In Kentucky, income inequality became more pronounced over the most recent decade. The impoverishment and decline that inequality fosters is believed to discourage investment and, in turn, adversely affect productivity and the broad-based benefits it yields.

As more workers face growing uncertainty fueled by stagnant wages, diminishing benefits, continued layoffs, and the prospect of rising workloads and work hours, the critical relationship between worker and employer is being undermined. Because the quality of that relationship figures prominently in productivity and, hence, in the future of the American economy, the importance of forging joint worker-manager efforts to address emerging problems rises on the policymaking landscape.

THE FOUNDATION FOR PROGRESS

The importance of strengthening the foundation that will support Kentucky's future progress cannot be overstated. The skeleton of a sound physical infrastructure must be matched with the realization of our fullest human potential if we are to create and capture opportunity in the coming years. We will be challenged to repair, fine-tune, maintain and expand Kentucky's foundation for progress to ready our state for the certain and dramatic changes ahead.

Fiscal Health

To manage the trends affecting the state and seize the many opportunities on the horizon, Kentucky must put its limited resources to work efficiently and effectively. Kentucky's state and local spending mix, its tax structure, its debt position and financial resources must form a cohesive unit, if we are to harness important technological, economic, and demographic changes influencing the future.

Kentucky's fiscal structure is characterized by a heavy concentration of taxing and spending at the state level, more so than in other states. Consequently, the people of Kentucky rely heavily on state government to provide services, financing, infrastructure and leadership on matters that are traditionally the obligations or prerogatives of local governments in other states. Presently, the state's debt position is manageable and sustainable, but its platter of responsibilities, as well as the cost of major programs, continues to expand. Moreover, the need to plan more effectively for the long term is evident.

Despite the concentration of fiscal responsibilities at the state level, the finances of counties, cities and special districts are extremely important. Indeed, local governments are responsible for a quarter of total state and local expenditures in Kentucky. A burden on city and county budgets which has received particular scrutiny in recent years is unfunded federal mandates, which are exerting increasing fiscal pressure on local governments.

While the focus of considerable debate, the question of Kentucky's tax competitiveness remains unanswered. Research efforts in the past year have made significant contributions in addressing these issues and in establishing priorities among tax goals, but more detailed information about the state's tax structure and its effects on state revenues is needed.

Transportation

A quality transportation system will be critical to Kentucky's future prosperity. Highways, the quality of which is improving even as use expands, are the traditional backbone of this system, and they will continue to be so in coming years. However, a number of forces now at work will expand the role of other modes of transportation and dramatically alter the transportation planning process. Federal legislation, environmental considerations, competition for business and technological advances will affect the way projects are planned, how they are funded and even the modes chosen to deliver needed services.

Evidence of change can already be seen in the planning process here in Kentucky, which now emphasizes preservation and management of the existing system; enhancement of safety and convenience; promotion of economic development; and, coordination of the planning process. How well Kentucky meets these four goals will determine the quality and usefulness of the state's transportation system in the coming years.

Environmental Integrity

While we have prospered greatly from the immense wealth of Kentucky's natural resources, we have often done so in the interest of short-term capital gain — bequeathing long-term environmental consequences to future generations at immeasurable cost. While Kentucky has made significant progress in restoring health to its environment, much more remains to be done to reverse the negative impacts of pollution and prevent costly and destructive future problems. Significant evidence suggests that in doing so, we will strengthen the foundation for progress and possibly expand opportunity and income.

The quality of Kentucky's water continues to improve, but substantial investment in infrastructure will be required in coming years, to safely treat wastewater and extend public drinking water to more Kentuckians. Strong, consistent, and targeted enforcement of environmental regulations, which has enabled Kentucky to make real gains in the restoration of its water resources, is believed to be critical to maintaining the progress that has been achieved. New approaches to managing pollution are likely to focus on the source, rather than the outcome, of water pollution.

Kentucky's air quality has improved dramatically since the enactment of the federal Clean Air Act in 1970, the provisions of which have led to significant reductions in levels of harmful pollutants, such as lead and carbon monoxide. When fully enforced, the federal Clean Air Act Amendments of 1990 are expected to dramatically reduce air pollution, but they will have an as yet undetermined impact on the state's coal industry.

Timely legislation has checked the influx of out-of-state garbage, but management of Kentucky's solid waste continues to challenge policymakers at every level. Programs to promote waste reduction and recycling will likely increase, as landfill disposal costs rise and more markets for recyclables become available.

New Prescriptions for Health Care

Remarkable changes, driven primarily by advancing technology and rapidly rising health care costs, are underway in our thinking about health and health care. Increasingly, the health care emphasis will shift to health promotion and disease prevention as a means of making health care more accessible and affordable while retaining quality. Secondly, a higher level of cooperation among individuals, private service providers and government is expected to emerge. Advanced applications of technology and more active involvement of communities will overarch these trends, as we attempt to create a more manageable, useful and equitable health care system.

Effective primary care and preventive and educational services for all Kentuckians offer perhaps the most useful tools for managing preventable illnesses and containing medical care costs. By a number of measures, Kentuckians are among the least healthy people in the nation, presenting significant opportunity to mediate costs.

A Future Imperiled by Poverty

Research has consistently confirmed that poverty adversely affects the health and educational attainment of children reared under its mantle, and in turn, the productivity and independence of their adult lives. From one-fourth to nearly one-half of Kentucky's children live in poverty. In dealing with this issue, our long-term strategy must be that of identifying high risk groups and investing in intensive help. If we remain indifferent to the growing needs of Kentucky's poor families with children, we will help ensure the perpetuation of poverty of unacceptable breadth, as well as the deprivation, the mediocrity, the pain and the costly consequences that attend it.

Toward Lifelong Learning

Gaps in education have a visible dollars-and-cents impact on families, communities and states like ours, and it is intensifying. As the workplace and society are gradually reoriented, knowledge will be key to our ability to adapt. Technology's vast embrace of information has challenged millions of workers, who make products ranging from cars to computers, to extend their own intellectual reach, to use and effectively manage a vast store of information and, in the process, become more active participants in the day-to-day business of the enterprises for which they work.

By virtually every measure, however, Kentuckians are undereducated and ill prepared to meet the challenge before us. Prominent among the litany of often repeated deficiencies are high dropout rates, a low rate of college attendance and one of the highest percentages of adults in the nation who do not have a high school diploma. While significant and even dramatic progress is being made, the Commonwealth still has far to go in its drive to close persistent education and training deficits.

In spite of its ranking at or near the bottom of the 50 states in many aspects of educational attainment, Kentucky has ascended to national prominence in educational reform. In just a few short years, the Kentucky Education Reform Act has yielded measurable improvements in the performance of students and engaged thousands of parents, teachers and administrators in a new way of thinking about education.

Increasingly, however, educational need has extended beyond the basics provided by a high school education. By the turn of the Century, the majority of U.S. workers will need more than a high school diploma. As the demand for highly trained workers who have a solid intellectual foundation continues to expand, the importance of honing the skills of new and current workers is critical to Kentucky's future. In spite of emerging innovations in other states, as well in Kentucky, our current system of education and training remains relatively fragmented, frequently inaccessible or unaffordable, poorly linked to business and industry, and underused. Voices of support for training our present and future workforce through vocational/technical schools, apprenticeships, school-to-work programs, literacy and adult education, on-the-job training, universities and community colleges, as well as other strategies, are remarkably united.

Knowledge and the analytical and creative skills higher education enables are becoming central to our lives. Increasingly, intellect will not only provide public and private institutions with direction, it will shape the work we do, the products we make and the future we build. While higher education continues to provide the intellectual capital needed to meet future challenges, cost poses an increasingly formidable obstacle to its benefits. Competing and compelling needs have eroded once generous public funding for higher education, challenging administrators to do more with fewer state dollars and prompting closer scrutiny at every level.

Responding to Crime

Researchers offer conflicting analyses of crime data, even as public opinion surveys record deep alarm about its presumed expansion. Some researchers conclude that violent crime is not escalating, contrary to widely held assumptions. Instead, they suggest, our response to crime — the criminalization of more acts, particularly drug offenses, increased reporting, more accurate data collection, and more effective responses — have combined to create the impression of an exaggerated increase in crime.

While Kentucky's crime rate is quite low and only a fraction of regional (South) and national crime rates, available data on violent crime suggest it may be rising in Kentucky. Moreover, juvenile arrests for serious offenses have also risen.

Predictably, prison populations have risen accordingly. Over the past 20 years, the rate of incarceration has increased 233 percent in Kentucky. The rising costs associated with increased incarceration are challenging policymakers to discover and implement alternatives to prison. As an important starting point, Kentucky's criminal justice system has begun to explore mediation as an alternative to litigation and to shift nonviolent offenders to less costly facilities or, in some cases, to home incarceration.

In the years to come, it is believed that rising crime rates and increasing costs will be partly ameliorated by technological advances, which will assist the courts, law enforcement and corrections. Moreover, white collar crime is expected to become more commonplace, moving a substantial portion of crime off the streets. Consequently, in addition to adapting to new technologies, Kentucky's law enforcement agencies must prepare for changing types of crimes.

Building Social Capital

The effectiveness of government in the future will depend upon the ability of its leaders to overcome cynicism, alienation and even despair among the citizens it serves and build the social capital or citizen participation needed to meet the challenges before us. Research shows that those communities and regions which enjoy high levels of civic engagement are far more prosperous. While hopeful signs of rising engagement can be detected in the civic life of Kentucky, many community activists observe that, for a variety of reasons, civic engagement is inadequate and, therefore, self-limiting. Despite this, government must, as a matter of routine, turn to citizens for guidance, direction and support, if it hopes to build the social capital on which successful development relies.

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THE COMMUNITY OF TOMORROW

Demographic trends that have gathered momentum over the past two decades suggest the communities of the 21st Century will look quite different from those of today. They will have adapted in many ways, from insight to infrastructure, to meet the needs of growing numbers of older citizens and fewer younger ones. At the same time, the families who are embedded in and are our most intimate communities will continue the evolution now underway. In spite of the changes they have undergone, most observers agree that families will survive the present test of their limits and remain central to our culture. The fundamental reshaping of the family that has proven discomforting to many, however, will likely persist as society itself moves to accommodate more fluid family structures.

As in many homes today, the ritual gatherings of the future will likely cast a wider net to embrace new “family” – neighbors, friends, and co-workers – formed by people who change jobs and residences often and tend to live in smaller households. These gatherings will also be distinguished by the increasing number of graying heads, while the pleasure of hovering over new babies will likely be rarer and, perhaps, more treasured. Together, we may anguish over increasingly complex questions of responsibility for one another, as the boundaries of families continue to blur.

Viewed with optimism, the future will be enriched by greater wisdom, insight and tolerance. But, as with the unfolding of almost all change, the future before us arouses trepidation as well as hope. Nationally, as well as here in Kentucky, our standard of living has declined, and a substantial number of tomorrow's workers will have been reared in poor or marginal circumstances. As a consequence, they may be ill-prepared to meet the demands of technologically advanced workplaces or to shoulder part of the responsibility for a ballooning population of retirees. At the same time, policymakers will be challenged to design new policies, programs and facilities to capture expanded contributions from older citizens and adapt physical and human infrastructure to meet their needs.

Some of the pieces of the future puzzle are now in our hands. They offer points of opportunity and challenge to policymakers at every level. To a great extent, our future prosperity depends on our ability to seize this opportunity, to transform a growing body of readily available, accessible information into the power of knowledge, the wisdom of vision and the courage of action.

THE PEOPLE OF KENTUCKY

Most of us view news of the world's expanding population with dread of the human suffering it may portend. The United Nations predicts the world population will increase by an average of 97 million people a year between 1995 and the year 2000. As the 21st Century dawns, people on this earth will number an estimated 6.25 billion, and the rate and magnitude of growth is expected to be greatest in the world's poorest nations. In some developing nations, populations are doubling every 20 to 30 years (Merrick). As a consequence, we confront the possibility of a global population that will exceed the abilities of nations to feed, much less nurture it.

The view is quite different from Main Street, Kentucky, where the adage "strength in numbers" might best characterize our perspective. But many of us are cautious about change. We would like to hold on to the placid beauty we find so hard to leave and, at the same time, capture some of the energy that flows from growth and expansion. What we seem to be seeking is a middle ground where there is greater opportunity for the young who now flee in search of prosperity and where the unforgettable qualities of this state continue to beckon those who have left. Current demographic trends yield important points of opportunity to capture more of that middle ground.

POPULATION

After a decade of stalled population growth in Kentucky, surprising expansion has occurred in the 1990s, puzzling forecasters and planners.

In the midst of what most demographers characterize as a world population explosion, our immediate world – the Commonwealth of Kentucky – has experienced an altogether different trend in recent years. While the nation continued on a path of steady population growth, Kentucky's population appeared to reach a plateau, rising just 0.7 percent (24,519) from 1980 to 1990, as compared to a national gain of 8.7 percent. During the 1970s, Kentucky's population gained nearly half a million people and experienced 12 percent growth. In the 1980s, however, only nine other states registered slower population growth. As a consequence, Kentucky lost a voice in Congress, and state demographers began cautioning policymakers about implications for the future of the state's economy and its workforce.

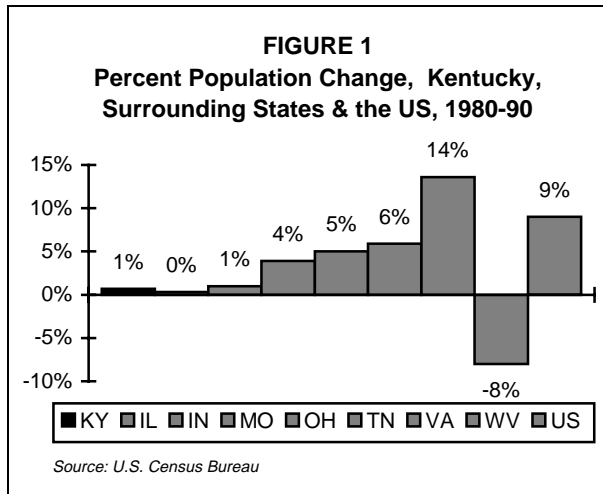
As illustrated, Kentucky's neighboring states, with only one exception, grew at a rate slower than the nation as a whole over the 1980-1990 decade. Only increasingly urban Virginia enjoyed population growth in excess of the national average, suggesting the entire region is being affected by similar forces which are, in turn, being reflected in population growth.

During the early 1990s, however, Kentucky has experienced an unanticipated burst of growth, in which demographers express minimal confidence. By July 1993, the state had gained an estimated 103,704 people and grown 2.8 percent, four times the growth of the preceding decade; however, these data were generated by new collection methods, about which demographers remain uncertain. While the state's recent growth in population is not significant by most standards, if accurate, it exceeds moderate growth predictions based on 1990 Census data. Were this high-growth rate of expansion that has characterized the early 1990s to persist until the year 2000, the state could possibly resume patterns of growth similar to those of the 1970s. However, state demographers view this scenario as unlikely.

Population growth, however, also appears to be accelerating in surrounding states, suggesting the entire region may be benefiting from favorable migratory patterns. Kentucky has made some gains attributable to migration. In November 1993, the Census Bureau reported that 27,000 people had migrated to Kentucky from 1990 to 1992, 19,000 of whom were products of domestic or state-to-state migration. An estimated 5,000 were international migrants and 3,000 were U.S. citizens returning from abroad.

These data suggest the possibility of a reversal of the pattern of out-migration that characterized the 1980-1990 decade, when the net migration rate (population change exclusive of births and deaths) eroded a modest natural (births and deaths) population gain (5.4 percent) the state experienced. The out-migration of more than 17,000 people a year during the 1980s contrasts sharply to the more recent patterns of in-migration at an estimated rate of 13,500 a year. As families and communities across the state have witnessed and bemoaned, the out-migration of the 1980s was most pronounced among Kentuckians in their twenties.¹

State Demographer Michael Price suggests that recent positive patterns of net migration may be attributable to a decline in defense and other industries concentrated in coastal and Sunbelt states. As a consequence of massive job losses in these regions, middle America may be coming home. Kentucky has experienced only two periods of net in-migration in this century, according to Dr. Price, during the Great Depression when workers returned home as jobs disappeared from the national economy and during the 1970s when Kentucky experienced a rural renaissance, fueled by a coal industry boom and record manufacturing growth. By the



¹ Outside of those counties where state universities and military installations are based, only Jessamine and Laurel counties experienced in-migration in the 20-24 age group over the decade, and, in the case of Jessamine County, the rate of 4.2 percent among young women was likely tied to the proximity of the University of Kentucky in adjacent Fayette County. Laurel County experienced an in-migration rate of 1.5 percent among males in the same age category.

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end of the 1970s, the state had reverted to the patterns of net out-migration that have characterized its history throughout this century.

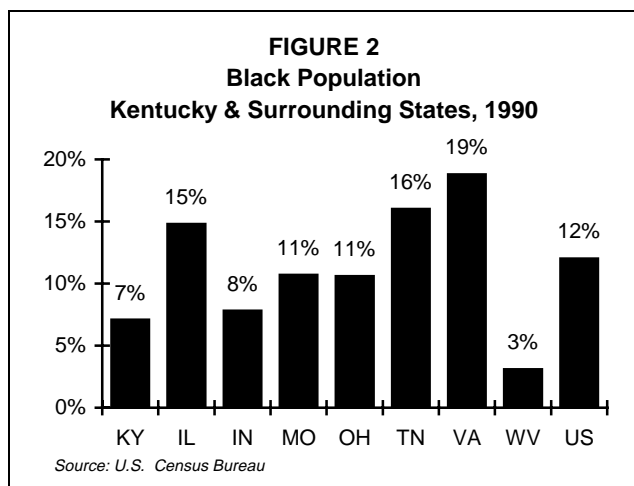
Some trends, however, suggest broad shifts that could contribute to growth in Kentucky may be underway. Nationally, evidence of net migration to non-metropolitan areas can be detected, according to University of Kentucky Professor Emeritus and demographer Dr. Thomas R. Ford. More specifically, the Department of Education's gross student count in the Spring of 1990 revealed 4,000 more students than anticipated. Student population had been estimated for the 1990-92 biennial budget based upon demographic trends which were confirmed by a variety of state agencies. Prior to 1990, the number of students had declined steadily.

Unless we witness an unexpected, dramatic reversal of current trends, demographers do not predict that recent signs of growth will be sustained. Instead, the state's population is expected to continue growing slowly relative to the nation as a whole well into the 21st Century. Since 1990, however, Kentucky's estimated 2.8 percent rate of growth has approached that of the nation – 3.7 percent, demonstrating that demographic predictions are, after all, only highly educated guesses. Nevertheless, the possibility of more vigorous growth in population is diminished by underlying trends influencing Kentucky's long-range demography. They lend considerable support to the moderate-growth scenario.

AGAINST THE TIDE OF DIVERSITY

*Kentucky's population has persisted in its homogeneity,
a trend that may not bode well for a future
that promises dramatically expanded
minority workforce participation – and clout.*

In an era when the minority populations of some of the nation's most populous states are rapidly achieving majority status, Kentucky's relative homogeneity has persisted. As Hispanic



and Asian populations increased nationwide over the 1980-1990 decade, particularly in the coastal states, Kentucky remained a predominantly white state with a small, virtually unchanged black population.² While the state's black population grew at a faster pace than the state as a whole (1.3 percent as compared to .7 percent), the gain was relatively small (3,430). It nevertheless represented 13.9 percent of the state's overall population gain for the decade.

The portion of the state's

² Black Kentuckians numbered 262,907 in 1990, as compared to significantly smaller populations of people of Hispanic (21,984), Asian or Pacific Islander (17,812), or American Indian, Eskimo or Aleut (5,769) origin. Nearly 7,000 Kentucky residents cited their origins as outside these categories.

population that is black (7.1 percent) remains smaller than that of the nation (12.1 percent). Moreover, as illustrated, Kentucky is less diverse than every surrounding state but West Virginia (3.1 percent). While the percentage of Indiana's population that is black (7.8 percent) barely exceeds that of Kentucky's, its overall population and, hence, its black population (432,432) is considerably larger than Kentucky's (262,904). Like Indiana, surrounding states with larger black populations are home to urban communities with established black communities that are stronger magnets for minorities.

As with the state as a whole, black Kentuckians are aging in place, but the percentage of older blacks has not grown at a pace comparable to that of the entire state. This is largely due to higher birth rates among blacks which have increased the percentage of children and, consequently, reduced the percentage of older adults. Quite the reverse occurred in the state's white population during the 1980s. Additionally, survival rates among both black men and women are somewhat lower than those of white men and women at relatively young ages³ (Kentucky State Data Center).

Underlying the state's present demography, however, are signs that Kentucky may witness greater diversity in the future, particularly in its urban centers. Toyota's presence in Georgetown has expanded Asian members of the state's population and attracted numerous foreign-owned satellite plants that have increased cultural, if not racial, diversity. Moreover, the entry of an estimated 5,000 migrants from other countries during a recent two-year period (1990-1992) forms a potential nucleus of new immigrants to the state who, in years to come, may enrich its diversity. Several rural counties have increased their reliance on migrant, predominantly Hispanic farm workers whose presence typically leads to settlement, according to Dr. Price. Likewise, higher fertility rates among both Hispanic and black women could expand these populations. And, while Kentucky's overall black population experienced slow growth, black youth became a larger portion of the black population, even as their actual numbers declined somewhat, suggesting that Kentucky's black community will experience growth, albeit slow, in the coming years.

Whatever its root
cause,
the state's persistent
homogeneity is
problematic for our
shared future.

Growth in Kentucky's minority population has been largely an urban phenomenon. Outside of urban Fayette and Jefferson counties, where black populations expanded during the 1980s by 10 percent and 3 percent respectively, minorities comprise just 4.1 percent of the state's population. Only 33,046 black Kentuckians resided in rural communities in 1990. The vast majority of counties in the state witnessed decline in their minority populations during the 1980s, suggesting that more and more black Kentuckians may be migrating from their rural and suburban homes to urban areas. Fayette County's minority population, for example, grew by 10 percent during the 1980s, while surrounding counties lost minority residents. Ultimately, shifts in minority population to Kentucky's urban centers will not only transform population but representation in both city governments and the General Assembly.

Slow growth in the state's black population may be tied to the inadequacy of opportunity that has haunted the state throughout its modern history, a circumstance that is complicated and worsened by discrimination and the rise in single-parent households. These forces have made poverty far more acute in black households and in many communities of Kentucky, as

³ By age 50, for example, 993.2 per 1,000 white males survive as compared to 988.1 non-white males, and 996.5 per 1,000 white females survive compared to 992.8 non-white females.

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well as the nation as a whole. While 19 percent of the state's population lived in poverty in 1990, 35.2 percent of black Kentuckians were poor, and they fared worse than black Americans in general, 30 percent of whom lived in poverty in 1990.

Whatever its root cause, the state's persistent homogeneity is problematic for our shared future. Minority populations have experienced the fastest rate of growth in the United States in recent years. They will comprise a significant portion of the future U.S. workforce. Between 1989 and the turn of the century, the Bureau of Labor Statistics estimates that as many as *one in two* new workers entering the labor force will be Hispanic or black. In anticipation of the future, some U.S. communities are taking steps to strengthen relationships with minority residents and to recruit and retain minority immigrants.

The recent experience of Des Moines, Iowa, is illustrative of what the future may hold for predominantly white communities and states as the nation's population becomes increasingly diverse. In spite of a generous offering of \$25 million in incentives, Des Moines reported losing a significant biotechnology firm location largely because of its relative homogeneity. The considerable strengths of the community were outweighed by the firm's desire to retain a diverse workforce. Recognizing the liability that homogeneity has become for Des Moines, the city Chamber of Commerce plans to develop an institute that will seek ways to attract and retain more minorities (D. Johnson). As more and more firms expand their numbers of minority employees, decisions about investment and location will be strongly influenced by their presence, elevating the need for Kentucky to respond as Des Moines, Iowa, has to the forces of change.

The emergence of a global community also compels us to increase comfort levels with diversity throughout Kentucky. As exports and foreign-owned firms become increasingly important to the economic well-being of all Kentuckians, we will be challenged to work cooperatively with people and enterprises from diverse cultures. Clearly, the opportunity to learn from other cultures, as American managers have learned from the Japanese, is immense. In many ways, our openness to diversity is vital to our future prosperity. As former Chamber of Commerce director and Toyota executive Jim Wiseman suggests, the internationalization of Kentucky's economy holds enormous potential for growth in income and opportunity. Essentially, the state's ability to compete in the future may be compromised as an increasingly high value is placed on diversity and the ability to understand and work with diverse groups becomes essential to successful economic and career development.

Looking inward, an important point of opportunity for the future lies in local and state programs and policies that will help bridge inequities, foster leadership development and create opportunities for minority Kentuckians and minority immigrants to the state. Because persistent homogeneity may become an obstacle to industrial recruitment and expansion, it is important to recognize the need to create a receptive climate for a diverse population in order to realize Kentucky's fullest potential.

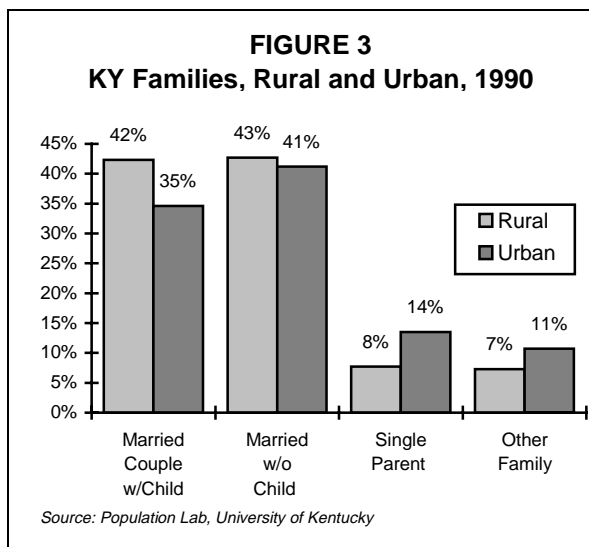
ENDURING RURAL CHARACTER

*Kentucky's enduring rural beauty and the quality of life it enables
may hold enormous future appeal for those in flight
from urban congestion and crime.*

Slow population growth and out-migration are harbingers of things that will *not* soon come to Kentucky. In an era of increasing urbanization, attended by problems of congestion, crime and pollution, Kentucky is expected to retain its essentially rural character for some time to

come and, as a consequence, delay or avoid the arrival of some of the problems urbanization brings. In 1990, the Census Bureau found nearly half of Kentuckians (48 percent) living in rural communities, those with 2,500 or fewer people. While those Kentuckians who live in the state's 19 metropolitan counties (designation based on extensive federal criteria) have steadily increased their numbers since mid-century, from 28 percent in 1950 to 47 percent in 1990, this population measure only inched upward by 2 percent during the 1980s. In contrast, 78 percent of the U.S. population now lives in metropolitan areas.

In its rural character lies much of the appeal Kentucky's varied, beautiful and relatively unchanged land holds, particularly for natives of the state. Native Kentuckians comprise 78 percent of its population, a remarkable composition in an era of unprecedented job mobility. It is an appeal of such strength that Appalachian researchers such as Dr. Stephan M. Wilson, University of Kentucky Professor of Family Studies, report having found examples of families who have rejected economic opportunity for the social benefits of connection to family. This unsung strength may magnify the state's appeal as urbanization continues to exert stress on family life.



Indeed, demographic data suggest that families may be more resilient in rural communities, underscoring what may become a compelling strength to would-be migrants in the coming years. Rural Kentucky households are almost twice as likely as urban households to be family (two or more individuals related by birth, marriage or adoption) as opposed to non-family (without related individuals). In rural Kentucky, 19.8 percent of households are non-family as compared to 32 percent of urban households. As illustrated, family households are also more likely to be formed by married couples, and married couples with children are

more prevalent in rural areas of the state (42.3 percent) than in urban areas (34.6 percent). Likewise, fewer single-parent families are present in rural areas of the state (7.7 percent compared to 13.5 percent) (Ilvento et al).

But researchers have found that rural life is anything but idyllic in the United States. Rural families are more likely to be poor, to receive inadequate health care, to face transportation problems, and to incur disproportionate costs for housing, according to a forthcoming study by the National Council on Family Relations. Among the nation's rural youth, 22.9 percent lived in poverty in 1990, circumstances which research shows are less likely to be relieved by federal assistance programs because so many rural youth live in working poor households that do not qualify for benefits. Health care is less likely to be affordable, as rural families are less likely to have health insurance or access to care, and rural areas typically have half as many physicians per capita as urban areas. And while rural families are far more likely to live in substandard housing, one in nine of all rural households spends one-half or more of its income for housing (Wilson). In Kentucky's rural counties, poverty is widespread. Professor Patricia Hyjer Dyk, a University of Kentucky sociologist, reports having found that fourth grade stu-

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dents in eastern Kentucky already express the belief that they will have to leave their home communities because jobs will not be available when they grow up.

In spite of forces that are undermining families and the economies of many rural and farm communities, the overall rural-urban composition of Kentucky's population has remained virtually unchanged. Over the course of the 1980-1990 decade, the rural population declined by only 1 percent or 24,153 people; however, nine rural counties lost 10 percent or more of their population. The rural farm population declined by a more significant 28 percent or 70,385, a shift that may signal more accelerated decline in the state's rural population, as the economic viability of rural life is further undermined.

The recent resurgence of Kentucky's population is a possible signal of expanding economic opportunity that is helping the state retain workers and attract new residents or migrants away from declining economies. If sustained, this recent growth could trigger a faster pace of movement to urban areas and regional magnets of opportunity. While precise reasons for recent population growth or its true extent will not be known for some time, the underlying trends influencing the nation's demography can be expected to exert an influence on our state for years to come. Many of these trends have been far more pronounced in Kentucky than throughout the nation as a whole.

FUTURE IMPLICATIONS

In coming years, we will not only be challenged to capture more growth but also to determine how much is enough.

Slow population growth in Kentucky is both a product of underlying demographic shifts and a response to inadequate economic opportunity, what Dr. Price calls a "release valve" for poverty. While Kentucky's rural appeal is unquestionably a strength, the balance between positive aspects of slow population growth and the need to sustain communities was lost during the 1980s, as many young people left the state and many rural communities experienced escalating poverty. Ultimately, continued slow population growth could jeopardize the state's future workforce, the viability of its small communities, and the level of representation it enjoys in Washington. In order to rebuild the foundation of Kentucky's population, the young people needed to replenish our workforce and lend vigor and vitality to our state, development policies must reflect the goal of strengthening families with children.

The future challenges us to determine how much population growth we want and how to achieve that level of growth while maintaining the considerable appeal of our state. Many would argue that Kentucky's present population is ideal, that the state needs only to provide more adequately for those who are here. But we are constrained in our ability to do so because we lack the wealth that generally issues from growth and expansion. Strategies for enabling prosperity from within coupled with some measure of growth will be necessary to support the development of a higher quality of life for all. Most, however, agree that the strength of Kentucky's future lies not in numbers but in building an educated, skilled and productive citizenry. While we have begun to lay the educational foundation for that future, we are challenged to address lingering deficiencies that inhibit Kentucky's potential.

Though present trends would seem to portend a different scenario, it is not unreasonable to envision the long-term possibility of population growth in Kentucky, as a number of forces influence decisions about location, including rising levels of concern about family viability and environmental quality. In both areas, Kentucky enjoys immense and largely unsung strengths that are diminished by the lack of opportunity that haunts many communities. Na-

tionally, according to Dr. Ford, there is evidence of movement to non-metropolitan areas. Such movement could be magnified in the future as technology permits more and more people to separate work from place, to live in small communities and maintain their livelihoods electronically. Indeed, the development of Kentucky's Information Highway may expand opportunity significantly and invigorate many rural communities in the process.

Also, Dr. Ford notes that the majority of Kentucky natives who have migrated out of state reside in surrounding states, yet little is done to attract them back to Kentucky. The development of retirement communities, for example, could become an important source of income growth as the population ages. Studies, however, have raised questions about the overall impact of retirement communities on the fiscal well-being of an area, as property values tend to rise and, in turn, adversely affect taxation for all citizens.

At the same time, the lack of diversity in our population could foster an image that may undermine and even thwart progress. Consequently, attracting and retaining a diverse population of workers, particularly young families, is critical to the state's future. To do so, it will be necessary to adopt policies and programs that are responsive to the needs of families, to create high quality jobs, and to sustain our commitment to educational excellence and broaden it to include life-long training and educational opportunities. Whether Kentucky remains much the same or becomes a magnet for people and investment will depend on how quickly we act and how wisely we adapt public policy to the changing circumstances of our world.

Ultimately, the future strength of Kentucky's families and communities will depend upon the vision we adopt and strive to advance. Without it, wisdom holds, we are lost. Dr. Ford wisely suggests that we stretch ourselves, envision the ideal, aim to attract and hold the size and the character of the population we want. While demography illuminates our strengths and weaknesses and suggests ways of capturing more of the former while minimizing the latter, only vision and the will to realize it will determine who we become.

CHANGING FAMILY STRUCTURES

The families of our nation and our state are changing. While they remain our most valued source of strength and comfort, about which we exult and anguish, families are becoming somewhat amorphous. Our uncertainty about their changing shape has fueled acrimonious political debate and engendered widespread discomfort. Many of us would like families to stay the same or, more accurately, stay the way we thought they were, but demographic trends suggest that change and diversity will continue to characterize American family life for years to come.

Even as family scientists and demographers dispel our mythology of family with facts, we cling to the Ward-and-June-Cleaver vision of the way we were and ought to be. In truth, we never were as perfectly shaped as we thought. According to the U.S. Census Bureau, just 43 percent of families in 1940 were "traditional" in the sense that they had a working father and a homemaker mother and, of course, well-rounded children. Today, less than 20 percent of American families fit nicely into this shape and two-income marriages are now the norm (Ottens). Others are blended and step-parent families, single-parent families, and extended families. Still united by the common threads of shared experience and, in the best of circumstances, shared commitment, families have become more elastic. And a growing number of people are choosing to live alone or with partners, friends, co-workers, etc., in what demographers refer to as "non-family" households.

Social and economic forces have buffeted families and influenced not only their shape but how and when they are formed and the supporting roles played within them. While we remain strongly committed to the institution of marriage, we have gradually become more comfortable with the possibility of impermanence, as well as the promise of remarriage. Ever the adaptive species, we are delaying marriage, almost three years longer than was typical in the 1950s and 1960s, and family scientists are finding that cohabitation has become a common prelude to marriage. More people appear to want marriage to last in their own lives and to endure as an institution. Nationally, the divorce rate peaked in the late 1970s and has since declined, indicating that a renewed commitment to marriage is well underway.

In and out of marriage, more women are working and forging careers of their own, diminishing the economic incentive to marry. A growing number of them are choosing to have children on their own or not at all. As domestic roles shift to accommodate increasing demands on women, the "battle of the sexes" has moved the debate from who will bring home the bread to who will shop for the ingredients, bake it, clean the kitchen in the aftermath and care for the children while the work is being done. Gradually, the domestic front is becoming more egalitarian.

We are not only adapting to new roles and making new and different choices, an unforgiving economy is pushing more of us toward choices we might not have made otherwise. Women increasingly express preference for home and family over work (Roper) but see no way out financially. Difficult economic circumstances are taking a toll on families, particularly those headed by single parents and young couples. Purchasing power has declined, and costly plans for the future or the unforeseen, including health care and retirement, are often put on a back burner. In effect, parenthood has become too closely associated with poverty for the

comfort of many. For children, the consequences of family disruption and the resultant economic decline have been devastating.

As we look to the future before Kentucky families, the timeless wisdom of the ancient Greek philosopher Heraclitus, who observed that nothing endures but change, may offer our only certainty. The challenge before us is to create and advance programs and policies that serve as a catalyst for positive change in the lives of Kentucky families.

FAMILY DIVERSITY

*We marry – and divorce – more often than
the nation as a whole, fragmenting families
and multiplying uncertainty in the lives of children.*

Whatever their configuration, families are the source of shelter, support and comfort children need in order to become healthy, productive adults. But recent economic and social trends have weakened this vital support structure, making it more difficult for many families to provide the nurturance and the physical support children, indeed human beings, need in order to thrive and become productive, contributing members of society.

The traditional nuclear family began experiencing increased disruption in the mid-1960s when divorce rates increased and, as a consequence, more families fragmented. In spite of widespread perceptions of increased family instability, the U.S. divorce rate actually peaked in 1979, according to Dr. Wilson, and has since declined. However, stress on families has not, and disruption and fragmentation continue to occur, as they have throughout our history.

In response, couples are delaying marriage longer and expressing greater reluctance to form families. Children are a product of choice more than ever before, but they are an option that is being ruled out by many families. The resultant "economic infertility," suggests Ron Crouch, director of the Kentucky State Data Center, has contributed significantly to the rising percentage of married couple households in Kentucky with no children (42 percent). In 1990, they exceeded those with children (38 percent).

Importantly, this trend is also strongly influenced by the increased portion of older married couples whose children have left the nest, which, observes Dr. Ford, is evidence of the persistence and the endurance of the nuclear family. Indeed, Dr. Wilson suggests that our perception of increased family instability is partly a product of the aging of our society. For example, Dr. Wilson notes, Americans actually experienced higher rates of single parenthood in the 1890s because of the early death of spouses. As a consequence of increased longevity, he observes, we are struggling with the difficulty of living in long-term marriages.

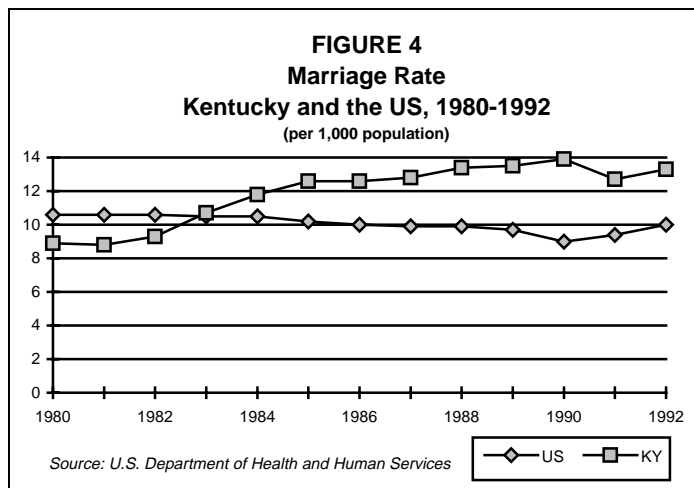
As a consequence of
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Dr. Stephan M. Wilson

When nuclear families break apart, children are often left with the emotional and economic baggage that invariably attends family disruption. While they may become more resilient, more mature, more independent in the process, most agree it is not without a cost. From precipitous declines in their standard of living to evidence of increased emotional and behavioral problems in single-parent families, children have not emerged unscathed from the family dis-

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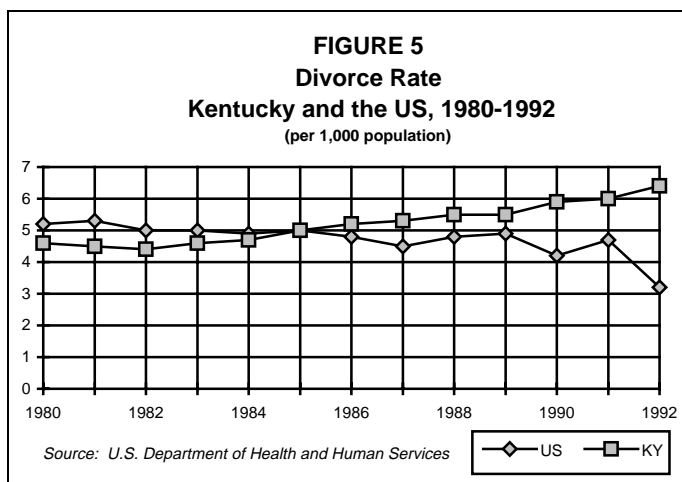
ruption we have experienced in recent years. However, recent research has also shown that the quality of parenting, the degree of parental involvement and effort, as well as the ability to cope with stresses, are more important than whether a family is headed by one or two parents. Contrary to popular assumptions about working mothers and their declining effectiveness as parents, the study, which was based on national survey data, concluded that children who should be the focus of greatest concern are those reared in families headed by parents with low education and income levels and those from which fathers are absent or mothers are *not* in the labor force (Zill).



The emerging patterns that sociologist Andrew Cherlin explored in his 1981 book, *Marriage, Divorce, Remarriage*, have, however, persisted and challenged our abilities to adapt. To the consternation of many, the idealized nuclear family, an anomaly of the 1950s in the view of many demographers, has eluded a growing number of us. But our faith in marriage and family has not been shaken. Among family households in Kentucky,

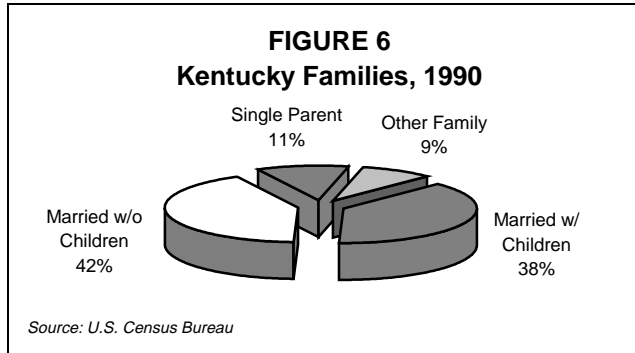
80.4 percent are married couples. As illustrated, Kentuckians have continued to marry at a slightly higher rate than the nation as a whole since 1984; however, the gap between the two appears to be narrowing. By 1992, 13.3 Kentuckians married per 1,000 population, as compared to a U.S. average of 10.

Kentuckians not only marry somewhat more often, they also experience higher rates of divorce. After years of trailing the national average, the number of Kentuckians who divorced began exceeding the national average around 1986. By 1992, Kentucky's divorce rate had risen to 6.4 per 1,000 population while the nation's had declined to half that rate – 3.2. While the national trend in divorce rates has moderated as couples marry at later ages and become more deliberative in their choice of partners, Kentucky's divorce rate remains high. As long as economic stress continues



to be acute in the state, family disruption is likely to continue occurring at a higher rate than that experienced by the nation as a whole.

As a consequence of these trends, the patriarchal family structure of the past is clearly on the endangered species list. Even in Kentucky, where Mark Twain once quipped he wanted to be when the world ended because it would arrive there much later, it will almost certainly wane as more and more women chart independent paths out of choice – and necessity. The real test we face during this course of inevitable change is moderating the adverse consequences for children, for equally compelling reasons of altruism and self-interest.

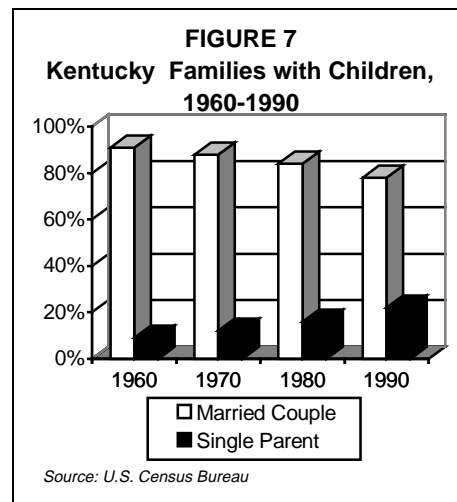


The increased incidence of divorce and a growing number of births to unmarried women mean that more children live in households headed by single parents. From 1970 to 1993, single-parent households grew 64 percent in the United States, from 3.8 million to 10.5 million. Among all family households (those with related individuals) in Kentucky, 10.9 percent were headed by single parents in 1990; however, among family households with

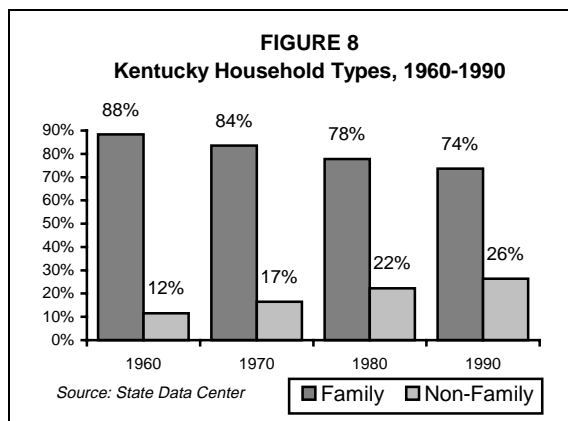
children, 21.6 percent were headed by single parents. While the majority of these family households are headed by women (83 percent), men are heading a growing number of single households, as custody decisions no longer automatically favor mothers.

Changes in family structures are far more evident among black family households in Kentucky. By 1990, the portion of black families headed by single parents was more than three times higher (33 percent) than among white families (9 percent), an outcome that is related to the difficult economic circumstances black families confront which, ironically, create yet another obstacle to economic parity. Among black family households with children, 57.3 percent were headed by a single parent in 1990.

Nationally, it is estimated that children who live in households headed by single parents are six times as likely to be poor. Kentucky children who live in households headed by single parents experience disproportionate rates of poverty, a startling 51.8 percent, more than twice the state's already high rate of child poverty (24.5 percent). Families headed by black women experience a comparable 53.7 percent poverty rate. Among the youngest and most vulnerable children, ages five and younger, who live in households headed by women, 68 percent were poor in 1990. While only 11 percent of married couple families with children are poor, 40 percent of women who head families with children are officially poor.



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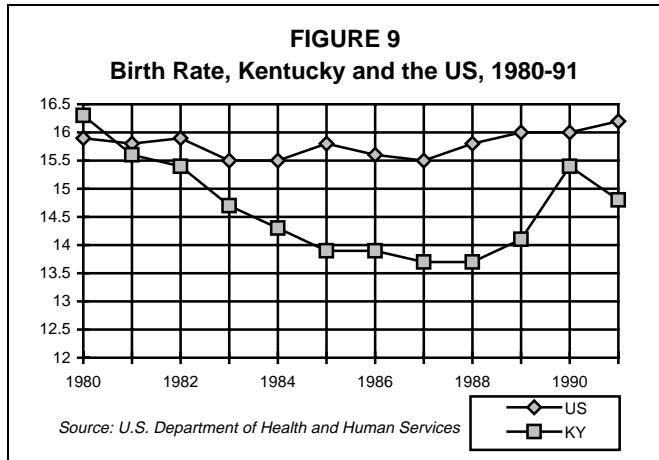
As nuclear families have fragmented, the number of non-family households, those occupied by singles or unrelated individuals, has risen dramatically. Today, they are the fastest growing type of household, followed by single-parent households. These households are occupied by people who are delaying marriage, living together as a commonplace prelude to marriage, living alone or with unrelated individuals. In Kentucky, as illustrated, non-family households increased their share of all households from 11.6 percent in 1960

to 26.4 percent in 1990. At the same time, family households declined from 88.4 percent of all Kentucky households in 1960 to 73.6 percent in 1990.

Within family households, the change that has had the most devastating economic consequences for children has also occurred at a steadily increasing pace. The percentage of single-parent family households in the state has doubled since 1960, from 5 percent of all Kentucky family households to 10.6 percent in 1990. As the number of single-parent families has risen, married-couple family households with children have steadily declined. In 1960, this type of household comprised more than half of Kentucky family households. Today, only 38.5 percent of family households are married couples with children, a reflection of growing economic pressures that discourage childbearing, as well as the aging of couples whose children are grown.

DECLINING BIRTH RATES

Defying stereotypes, Kentucky registered the 49th lowest birth rate in the nation during the 1980s.



A combination of factors is influencing the reshaping of our population, but none is more pronounced than the state's sharply declining birth rate. A predicted surge in the birth rate as the "baby boom" generation reached its child-bearing years simply never materialized in Kentucky. Instead, the state registered the 49th lowest fertility rate in the nation during the 1980s. The significant loss of young people to out-migration over the past decade

effectively reduced the most fertile segment of the population. As illustrated, Kentucky's birth rate fell sharply away from the national average after 1982, and began to approach it only at the close of the decade. Only in West Virginia did a lower percentage of women between the ages of 15 and 44 give birth.

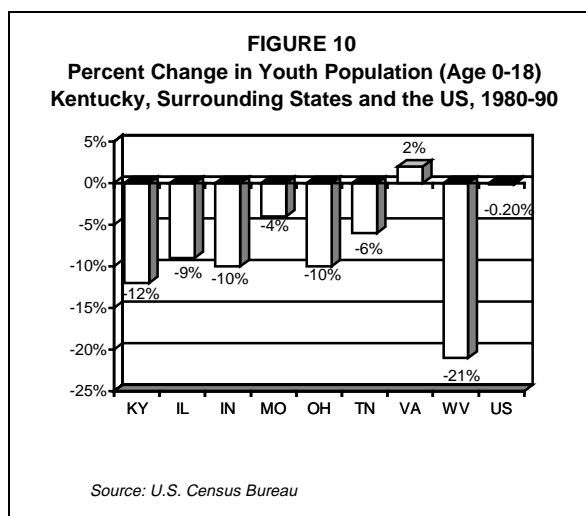
Also contributing to the state's depressed birth rate are destabilizing influences on the family. The changing circumstances of family life have propelled more and more women into the workplace, placing increasing constraints on time once devoted to childrearing and complicating a family support system long predicated on the caretaking role of women. It is a movement fueled as much by economic necessity as by the expansion of women's roles. More than ever before, families depend on two incomes. Among married couples with children in the state, 57 percent were two wage-earner households in 1990.

In many respects, children are a manifestation of our hope for the future. As our optimism has become clouded by declining wages and increasing demands on working parents, more time and energy is being dedicated to the struggles of today, rather than the promise of tomorrow. Families are under significant stress. These circumstances will continue to influence decisions about childbearing and, in turn, the population that will replenish tomorrow's workforce and sustain economic growth.

FEWER CHILDREN

During the 1980s, only two states lost a greater percentage of young people under age 18 than Kentucky.

In the absence of net in-migration, the inevitable outcome of the sustained decline in Kentucky's birth rate is fewer children. While part of a national trend, the decline in youth population was far more pronounced in Kentucky during the 1980s. Only 17 states in the nation actually experienced increases in their youth population, with western and coastal states registering the highest rates of increase, signaling the strong likelihood of long-term population growth. At the opposite end of the spectrum, populous states that have weathered significant



industrial decline (Michigan, -10.7 percent; Pennsylvania, -10.5 percent; New Jersey, -9.6 percent; and Ohio, -9.5 percent) and predominantly rural states experienced the greatest losses in youth population. Nationally, the number of young people age 0-18 remained virtually unchanged during the 1980s, falling by only 0.2 percent.

The decline in Kentucky's age 0 to 18 population was greater than that in all but two states, West Virginia (-20.7 percent) and Iowa (-13 percent). The state's youth population declined by 11.9 percent, as 128,636 fewer young people numbered among Kentucky residents.

The nation as a whole lost fewer than 100,000 young people from its youth population. As illustrated, surrounding states, with the notable exception of Virginia, which experienced a 2.1 percent increase, experienced patterns of decline in their youth population similar to that in Kentucky.

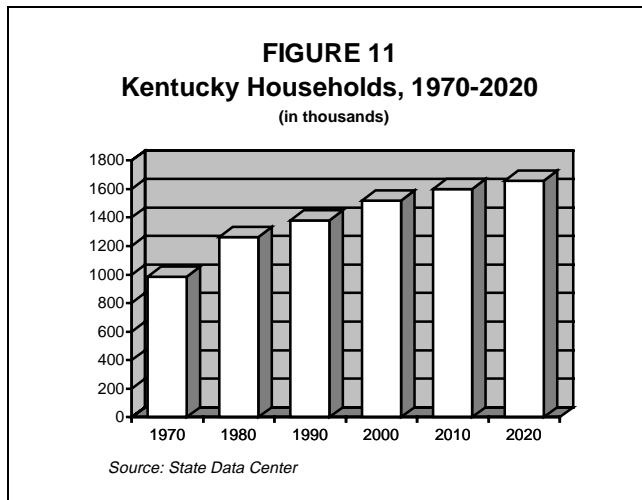
As previously noted, out-migration in the 20-24 age group was evident in virtually every Kentucky county, outside of those with universities and military installations. Many counties also began experiencing out-migration in the 15-19 and younger age groups. The decline of young people in the state is a principal reason for the state's stalled population growth over the 1980-1990 decade. If sustained, this trend could portend deeper population losses over the long term.

Only eight of the state's 120 counties experienced growth in their populations of young people during the 1980s, and eastern Kentucky counties experienced disproportionate decline. Nine of the 10 biggest losses in youth population occurred in eastern counties. Some counties in Kentucky, observes Dr. Price, are virtually depopulating, as deaths exceed the number of births. Previously home to high birth rates and youth populations, the trend for eastern Kentucky is, according to the State Data Center, a signal of closer alignment with the rest of the state, rather than one of alarming decline. The most significant growth in youth populations was registered in four suburban counties that also enjoyed fairly vigorous overall population growth in contrast to the state as a whole: Boone, 10.8 percent; Oldham, 6.5 percent; Grant, 6.2 percent; and Jessamine, 5.2 percent.

The decline in Kentucky's youth population, as noted by the University of Kentucky sociologists Gary Hansen and Lori Garkovich, has significant long-term implications, "Unless either migration into the state or the state's birth rate increases within the next decade or two, there will be significantly fewer people in the prime childbearing ages in the future. This may result in even fewer births." Consequently, high profile support for families and children could become critically important to the state's ability to attract immigrants and retain residents.

HOUSEHOLD FORMATION

As more of us choose to live alone and families continue to fragment, the number of households has risen while the number of people living in them has declined.



Because, as the U.S. Census Bureau's Arthur Norton has suggested, we seldom grasp history while it is being made, serious discussion of the implications of trends often arrives as they wane or moderate. Such is the case with growth in the number of U.S. households. The rapid expansion of households or separate living quarters has triggered widespread but belated attention to the implications for families, the environment and an already fraying community fabric.

The rise in the number of U.S. households experienced

its most significant growth during the 1970s. As divorce rates increased and families split, new households were formed at an average rate of 1.7 million per year during the 1970s. During the 1980s, however, the rate of growth moderated to an average of 1.3 million new households each year. In the early 1990s, the pace of growth declined slightly to about 1.2 million new households per year, according to the U.S. Census Bureau.

As illustrated, Kentucky households are expected to continue growing in number well into the 21st Century, but at a slower pace than experienced during the 1970s. By 2020, the State Data Center projects the number of households in Kentucky at 1.7 million, compared to the 1.4 million recorded in 1990.

The phenomenon of expanding numbers of households occurred as fragmented families formed new households and more individuals chose to live alone. During the 1970s, the number of persons living alone in the United States increased annually by 5.2 percent, a rate of growth that declined significantly during the 1980s to an annual average of 2.3 percent. That relatively low rate persisted and declined slightly in the early 1990s to 2.1 percent.

National trends in household growth were mirrored in Kentucky where they increased at an average annual rate of 2.5 percent over the 1970-1980 decade, less than half the national rate of increase but well ahead of the state's .8 percent average annual rate of population growth

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for the decade. Over the course of the 1980s, household formation in Kentucky moderated somewhat to an average annual increase of 2.2 percent. Between 1990 and the year 2000, Dr. Price projects that households will likely continue to increase at a faster rate than the population. Estimates are for an average annual increase of 2.1 percent between 1990 and 2000. While the growth of Kentucky households is slow relative to national trends, which demographers view as having moderated, it nevertheless has increased three times faster than population growth since 1960, according to the Population Laboratory at the University of Kentucky (Ilvento et al).

As the number of Kentucky households has increased, the number of persons living in each household has decreased proportionately, from 3.2 in 1970 to 2.6 in 1990. The State Data Center predicts that population per household will continue to decline into the 21st Century, from 2.6 in 1990 to an estimated 2.3 people in 2020. This downward trend seems at odds with those of rising poverty rates and declining family incomes, economic circumstances that would seem to propel often far-flung families to reconnection. Indeed demographic data indicate that, to some extent, such movement is underway.

In the case of young Kentuckians, aged 18 to 34, many of whom have children of their own, 25 percent lived with one or both of their parents in 1990. In an era of slow wage growth and high housing costs, more and more young adults are unable to sustain independent living; particularly single parents. Repayment of student loans has also been cited as an obstacle to economic independence for young adults (Ilvento et al). As the nuclear family has undergone significant stress, other forms of reliance on the extended family also may have increased, particularly among those whose economic circumstances are most adversely affected. A 1990 Urban Institute report on child care in low-income families in the United States found that 29 percent of these families rely on grandparents for child care (Brayfield).

The questions that arise as we examine the implications of rising households are fundamental. They touch family and community as we know it. Are more people forming new households, often in difficult economic circumstances, out of choice or because we have become less willing to share our homes and our lives with others? Or is public policy creating disincentives for extended family household structures? Or, more optimistically, has improved personal income enabled many adults to live alone by choice? Moreover, how far will public infrastructure and strained economies permit us to extend the demand for new households, whatever propels it? As we look to the future, policymakers must respond to these and other questions with creative answers that lend strength to family and community.

FUTURE IMPLICATIONS

By creating and encouraging more family-friendly workplaces, employers and policymakers can help mediate adverse consequences in the lives of children.

If Kentucky families are to gain sufficient confidence in the future to place more children at its doorstep, the structural issues of adequate wages, benefits, employment and training opportunities, and gender and racial equity must be systematically addressed. Public and private sector policymakers might first look to the workplace, which must become an institution that enables rather than undermines the fruitful co-existence of work and family life. Employers can play a vital role in building a better future for all by extending the same opportunity for flexibility to their employees that they have sought in the marketplace. The returns in higher productivity and morale are well-documented benefits that have advanced progressive em-

ployment and human resource policies in nations that are our most formidable rivals. Moreover, some of the nation's most prominent corporations are leading the way in flexible, family-oriented workplace policies.

An essential ingredient in quality work life is attention to the need for time and energy to dedicate to families. On-site or shared industry day care centers, pro-rated benefits for part-time employees, optional overtime, flex-time, job sharing opportunities, and paid parental leave are just some of the ways employers can begin positively influencing our future and policymakers can begin leveraging it.

Because there are and may continue to be fewer children in our society for a number of years, the potential of every child matters as never before. As Jonathan Rauch suggested in a 1989 article, the luxury of perceiving children as "strictly a non-profit venture" may be obsolete. Increasingly, our state and our nation need children to replenish a workforce that will soon be asked to help support the largest aging, retired and dependent population in the history of the nation. "The two ways that a society provides for its future," University of Maryland economist Frank Levy told Rauch, "are its level of physical capital accumulation and the number and the quality of its kids."

"The two ways that a society provides for its future are its level of physical capital accumulation and the number and the quality of its kids."

In the latter category, Kentucky's provisions for the future may be less than adequate. According to the University of Kentucky's Population Laboratory, Kentucky has been identified as one of six states in the nation predicted to experience a net decline in the number of young adults who will enter the labor force between the years 1990 and 2010 (Hansen & Garkovitch). Moreover, as many as 48 percent of them live at or near the poverty line, according to the Kids Count Consortium. Poverty, observes Dr. Wilson, is disproportionately located with tomorrow's adults. As a consequence, Kentucky's future prosperity depends more than ever on its support of families and its commitment to the care and education of young people.

Critical to support for families with children is access to work, which is limited in many rural areas of the state by inadequate child care and the absence of public transportation. Additionally, the quality of available work is a critical factor. An estimated 10 percent of Kentuckians work but their families remain poor. State Demographer Michael Price observes that it is important that current incentives for employers to solve problems by reducing labor costs be removed. At the same time, disincentives for work must be addressed. Dr. Ford observes that our culture is geared increasingly toward reducing, rather than creating, jobs, a shift that is having a significant impact on families.

In order to remove structural obstacles to work, it will be necessary to evaluate policies thoroughly in light of their impact on families, from economic development strategies to human service responses to need. Some states have enacted Family Impact Statements into law, requiring rigorous evaluation of programs and policies prior to their implementation. With or without such a mechanism in place, the imperative of supporting families with children compels rigorous attention to public policy at every level.

A possible strategy for replenishing Kentucky's youth population while building critical support for families who are here is to identify ways to make Kentucky a more "family friendly" state and construct a programmatic and policy strategy for building and aggressively marketing it. The qualities of such a state might include employer incentives aimed at creating more flexible work environments, opportunities to tap child and adult care, and importantly,

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education and training opportunities that provide an upward track out of working poverty. Similarly, recruitment strategies could be aimed at companies with demonstrated track records while marketing initiatives could promote the strengths of Kentucky employers who support working families. Complementary state services could also be developed to augment support for families. Again, as Dr. Price notes, the importance of addressing structural disincentives for work, as well as employer incentives for eliminating work, would also be critical to the cultivation of a supportive environment for families.

Professors Hansen and Garkovich suggest that the prospect of fewer children should enable us to ensure the highest quality of services to those who are here. Specifically, a declining youth population offers policymakers the opportunity to move beyond measuring programmatic effectiveness by numbers of participants and to begin evaluating the quality and impact of youth-oriented services, some of which simply do not produce results. With the adoption of best practice models, performance-based standards, and benchmarks by which to measure progress, Kentucky policymakers can invest state dollars in programs that yield positive, measurable results in the lives of children and their families.

Significant reason for greater optimism about the future of families may lie in the ascendance of family issues on the public policy landscape. At the federal level, the expansion of earned income credits to poor families, the enactment of family leave policies, and new child welfare funds each represent incremental gains for families. In Kentucky, the Kentucky Education Reform Act represents a broad-based commitment to improving the future before children in this state. Optimistically, the heightened consciousness that now attends a range of family issues could propel further important and constructive change and perhaps alleviate some of the circumstances that pose the greatest threat to the security of families and to the well-being of their most vulnerable members – children.

OLDER AND WISER?

Perhaps the most striking population trend, one that demographers predict will persist and deepen over the first half of the 21st Century, is the aging of our population. The implications for the future of Kentucky, as well as the nation as a whole, are among the most far reaching that lie before us. This fundamental change in our population will profoundly influence the way we live, learn, work and play. It will challenge us to revisit and redefine the roles that older Kentuckians play in every walk of life, from public to private. And it will cause society to revisit outdated assumptions about the aging process, about institutions, cultural practices and government policies that have formed around these assumptions. In many cases, it will be necessary to cast aside or reshape these policies and practices to fit an emerging population's needs.

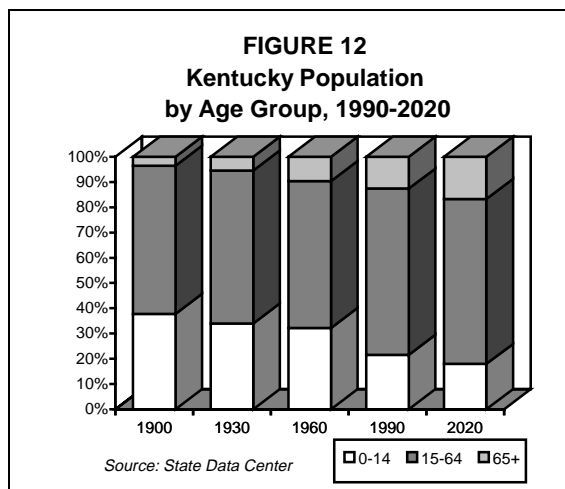
While it will challenge all of us, the expanded role older Kentuckians will almost certainly play in the future can be expected to enrich family life and bring a new energy to civic and community matters, as well as to the resolution of issues we confront as a state and nation. Greater wisdom will almost certainly inform every aspect of our lives. Capturing the enormous potential this sweeping change portends will require both the larger society and the policy-makers who represent its members to remove obstacles to its realization.

A COLLAPSING PYRAMID

*The layers of Kentucky's population no longer form
the traditional pyramid of the past.
Instead, there are fewer children and more older Kentuckians,
a trend that is expected to persist.*

The aging of Kentucky's population was revealed in 1990 Census data in the form of an emerging middle-age population bulge, the result of a decrease in the number of Kentucky children and an increase in those in their middle and older years. As our population "grays," its traditional pyramidal structure, in which members of older age groups decline in numbers as those in younger age groups expand, will gradually assume a more rectangular shape, reflecting near equal numbers among the various age groups. As a result, an increasing portion of Kentucky's population will be comprised of older citizens. While this trend is national in scope – the number of older Americans has doubled every 30 years since 1900 (Longino) – Kentucky is at its leading edge and, as a consequence, will be one of the first states to realize its full impact.

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As illustrated, the population of Kentuckians 65 and older has increased over the course of the 20th Century and is expected to increase at an accelerated pace during the first half of the 21st Century. The age structure of our population as we entered the 20th Century contrasts to that of our population today, as we have significantly fewer young Kentuckians (age 0-14), 21.6 percent of the population as compared to 37.7 percent in 1900, and more Kentuckians over age 65, 12.6 percent of the population as compared to 3.6 percent in 1900. By 2020, demographers predict we will have still fewer young people, more

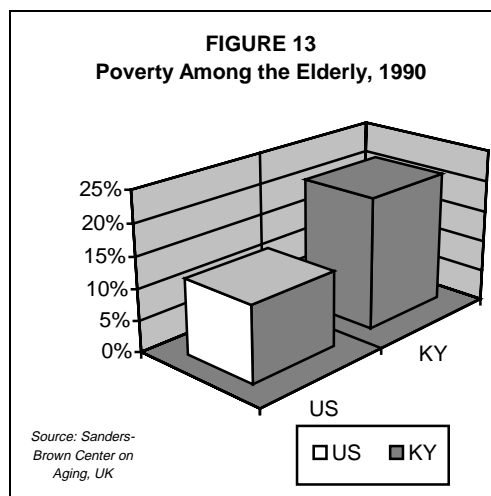
older citizens and fairly evenly distributed layers of population across every age group.

DISPROPORTIONATE POVERTY

*As Kentucky's older population expands,
so too may poverty.*

Older Kentuckians are far more likely to be poor than their counterparts in the nation as a whole. In 1990, 20.6 percent of older Kentuckians were poor as compared to 12 percent nationally. Of Kentucky's 120 counties, 20 had poverty rates among older citizens that exceeded 34 percent in 1989; all but one county were Appalachian counties. Eight counties had poverty rates among the elderly in excess of 40 percent.

Studies have shown that rural states like Kentucky are strained to provide much-needed support services for older people. As a result, a significant disparity exists between the quality of life enjoyed by seniors in urban/suburban communities and rural seniors, particularly if they live alone. A 1993 study conducted for the American Association of Retired Persons found a greater incidence of poverty, illness, and advanced age among older adults who live alone in rural areas. In contrast to their urban and suburban counterparts, it was found that the elderly who live alone in rural areas rely on an average income of \$2,000 to \$3,000 less than urban and suburban seniors. Nationally, more than one in five of the rural elderly report incomes that fall below the poverty level, and while they are



more than twice as likely to receive public assistance, their urban counterparts receive substantially greater benefits, nearly twice what the rural elderly receive (Coward et al.).

These disparities are evident in Kentucky. Those counties with the lowest populations of poor elderly are urban and suburban Oldham, Boone, Kenton, Jefferson, Campbell, and Fayette. Conversely, those counties with the highest percentage of elderly poor are rural and predominantly Appalachian (Sanders-Brown Center on Aging). As the population of rural elderly expands in Kentucky, the incidence of poverty may expand as well, increasing the need for support services.

FUTURE IMPLICATIONS

The aging of our population is gradually changing who we are and how we will live.

As Kentucky is challenged to meet the needs of a growing population of older citizens, it will be necessary to enrich our understanding of the aging process to develop more informed public policy. For example, the popular notion that older people decline intellectually as a matter of course is at odds with recent findings. Researchers believe the extent to which we retain intellectual capacity as we grow old is directly related to the extent to which we use it. The inactivity that often accompanies retirement may curtail intellectually challenging activities and hasten mental and physical decline. Hence, those who argue for the prolonged participation of older citizens in the workforce are ironic advocates for the elderly. Instead of losing years of retirement that may contribute to physical and mental decline, older citizens who remain in the workforce may be gaining years of more productive, vital living.

One of the most significant implications of an aging population is that of rising burdens of responsibility for needs unmet by pensions and health care. Younger citizens, whose numbers will be depleted, will shoulder much of the cost burden. These trends will magnify as baby boomers age and, in Kentucky, where the elderly are disproportionately poor, they are likely to be more pronounced. Between 1995 and 2025, according to demographer Charles F. Longino, it is estimated that elderly people will account for all of America's increased dependency. Importantly, increased personal responsibility for health care is expected, to an inestimable extent, to mediate the long-term impact of rising health care costs for the old. As need expands dramatically, however, the inadequacy of today's pension provisions will come home to roost not just for would-be retirees but for government as well. The public implications are profound.

As the population ages and the number of youth decline, the ratio of caregivers to older citizens will also decline. Already, the "sandwich generation," middle-age adults who are caring for children and aging parents, is experiencing significant stress to which workplace policies have not yet responded. Rising burdens of caregiving, however, will be mediated by the presence of fewer children in families, which will enable caregivers to focus more on older dependents. Clearly, we will be challenged to meet expanding need with renewed commitment to community and shared responsibility for aging citizens. Alternative support structures that provide for the elderly should be cultivated now in anticipation of the inevitable expansion of costly unmet needs. Presently, the caregiving role can be strengthened through greater public support for family, rather than institutional care, a less costly alternative that strengthens extended family, the role of which will become increasingly important.

As Kentucky's population ages, the amount of time and attention children receive should also expand. Opportunities for nurturance and guidance will abound for children if the grow-

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ing alienation evidenced in the expansion of households is countered by renewed commitment to family and community. It is quite possible that abundant evidence of the adverse consequences of poverty, neglect and inattention to the needs of children will give rise to unprecedented responses from individuals, government and social institutions.

Some of our most significant challenges will arise in the workplace, where older workers will play an expanded role. Incentives to retain older workers will eventually eclipse the early-out retirements that have become so commonplace in the era of downsizing. In order to secure longer-term commitments from experienced older workers, the importance of enriching the work experience will rise on the public and private sector agenda. While the overall quality of work life in the United States may have declined in recent years, the demand for more meaningful and more flexible work environments can be expected to rise with the seniority of our labor force.

On the other hand, some older workers are resistant to change, the hallmark of today's workplace, creating obstacles to new management structures and technological innovation. Greater attention to the needs of older workers may be required to enhance productivity and expand participation. Similarly, the rate of discovery and invention could be slowed as the

The demand for more meaningful and more flexible work environments can be expected to rise with the seniority of our labor force.

population ages, a possible outcome that technology may render inconsequential.

Community infrastructure – our schools, government services, and the professionals who serve in these fields – also will be influenced by the aging of our population. On the simplest level, such things as the duration

of signals at crosswalks may need to be extended to enable increasing numbers of older, more frail pedestrians to negotiate streets safely. More demanding innovations will be required in the case of our public school system, the infrastructure of which is already showing signs of being too extensive for the population it was designed to serve, a trend that is predicted to accelerate. As a consequence of such changes, it will be necessary to rethink the planning of public policies and programs, to create transitional roles for professionals and to develop alternative uses for buildings in order to more closely align public service with public need.

The need for community-based or neighborhood services that place fewer demands on older, less physically able adults also may rise. Consequently, the appeal of today's ubiquitous malls could wane, as older citizens seek products and services closer to home. The expansive refurbishment of a downtown block of Mt. Sterling, which will concentrate apartments for the elderly and numerous businesses in one area, may be a harbinger of future development strategies. In them, neighborhood groceries, for example, may resurface and contribute to a new sense of community that has been diminished by the characteristically impersonal quality of today's marketplaces. At the same time, an aging population could be expected to further fuel the rising demand for mail-order goods.

Modified communal-style living arrangements that offer independent living quarters as well as common space may also increase a growing need for interdependency. Built on a Scandinavian model, such housing offers the privacy of individual ownership and the community of shared space. It is being pioneered in the United States on Bainbridge Island, Washington, where 30 families share a five-acre pedestrian village and much more, including cooking, landscaping and decision-making ("Looking..."). Other possible housing options are the inclusion of smaller, contained units for older singles in the construction of new homes. Affordability may increase the appeal of such housing to both struggling young families and older citizens living on fixed incomes. As alternative housing emerges, the opportunity for

shared, multi-generational activities may also increase, help reunite generations at odds and repair the fraying fabric of community.

In the marketplace, the cult of youth is likely to wane, perhaps die. In addition to products and services that accommodate the increased incidence of frailty and diminished mobility, older citizens may set the pace in fashion, demanding greater comfort and more carefree maintenance, a trend which has already gained significant momentum. In every corner of our world, a range of products will emerge to ease accessibility and alleviate physical burdens. Likewise, entrepreneurs will create an explosion of services aimed at the special needs of older citizens.

As our population ages, the participation of older citizens in virtually every aspect of our society will likely increase proportionately. Combined with trends toward increasing educational achievement, the potential for an older *and* wiser population, informed by both experience and learning, is great. A rising ethos of personal responsibility, a new sense of moderation and health consciousness, and a renewed focus on family and leisure are emerging trends (Roper) linked to the maturing of our population that will influence future decision-making, as well as the impact of potentially costly trends on the public. These and other values will shape the vision of prosperity and progress that will inform the leaders of tomorrow.

GENERATIONS AT ODDS

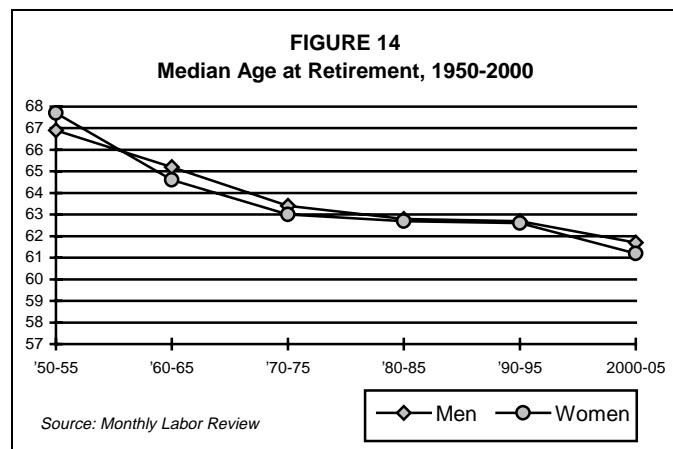
In the future, the push for a more equitable distribution of resources will likely intensify, pitting the interests of the young against the old.

A number of future gazers predict that, unless wisely countered with thoughtful public policy, converging economic and demographic trends will exacerbate tensions between the generations in the years to come. A generational undercurrent is evident in states and localities where young and old have split over how generously to fund public schools and in the workplace, where tensions have surfaced between young supervisors and older workers (Shellenbarger & Hymowitz). Gradually, the conflicting economic and social interests of young and old are pushing the issue of generational equity, the distribution of public resources in terms of need rather than age, higher on the public agenda, in spite of the attendant political risk.

However troubling the political risks associated with redistributing resources are, the forces of demographic and economic trends may overwhelm political concerns. A combination of factors, including an expanding older age group compared to younger age groups, declining public resources, expanding demand on public services and worsening economic

circumstances for families with children, could compel change.

The Social Security System, the portion of the federal budget it consumes, and the range of entitlement programs it affects are central to the issue. By the time the baby boom generation arrives at retirement age, Social Security will be gasping for fiscal breath. Trustees of the Social Security trust fund reported in April 1994 that, given current trends, the fund would



be broke by the year 2029, seven years sooner than had been predicted only a year earlier (Pear). Because current workers support current Social Security recipients, the baby boomer population of coming retirees will have fewer workers on whom to rely, due to the declining population of youth. If the system remains unchanged, the number of workers who support each retiree will drop from five today to an estimated 2.5 workers by around 2030. At the same time, life expectancies continue to rise. Older Americans now live an average of 13 more years than they did in the mid-1930s when the Social Security System was developed. And, as illustrated, they retire earlier, a trend that is expected to continue (Gendell & Siegel).

Another troubling wrinkle lies in the significant portion of tomorrow's workers who will have been reared in the difficult, life-changing circumstances of poverty. As author Jonathan Rauch proffered, today's workers might well ask themselves, "If we have fewer kids, and if more of the ones we do have are slouching toward adulthood from poverty, then how generously am I going to be supported in my old age?"

Unchanged, the system will eventually create enormous problems for states, policymakers at every level and the citizens whom they serve. Effectively, its generous, income-indifferent benefits to the old displace services to other groups in greater need. While the rancorous public dialogue about "entitlements" usually centers on welfare recipients, a significantly larger share of these federal benefits is going to older citizens, many of whom enjoy middle-class incomes. In 1991, for example, an estimated 20 percent of Social Security benefits went to households with incomes in excess of \$50,000 a year. Only one entitlement dollar in eight went to help poor families (Howe & Longman). If state policymakers are to counter the potential long-term consequences of widespread poverty among families with children, more public resources at the federal level must be dedicated to family programs. Most agree that will require income-sensitive Social Security benefits based on need, not age, or taxation of benefits above a certain income level.

The issue could become far more complicated at the state level as baby boomers age and the consequences of inadequate pension provisions are fully realized. High rates of job mobility, the declining availability of pension plans and troubled pension funds could leave many Kentuckians without adequate resources. A survey by the National Institute on Aging and the University of Michigan found that 40 percent of U.S. workers aged 51 to 60 have no pensions in place other than Social Security (Shellenbarger & Hymowitz). State and local government employees may not be an exception. Nationally, their pension funds are under-funded by an estimated \$125 billion (Scism). Disparities between the assets and projected liabilities of state and local employee pension funds have led to lawsuits in several states, including California, Maine, New York, West Virginia – and Kentucky.

Troubled private and public sector pension funds are also propelling a reversal of long-standing retirement plan practices, away from the traditional defined benefit plan, which ensures retirement income regardless of contributions or years of dependency, toward defined contribution plans. The latter will shift responsibility for investment decisions to would-be retirees. Rather than rely on funds that set contribution levels and manage investments, employees in defined contribution plans will be expected to calculate their needs for retirement and invest accordingly. In late 1993, the Governor's Commission on Quality and Efficiency recommended that Kentucky shift to a defined contribution system in order to realize savings and ensure the fund's long-term viability.

Today's workers, many of whom face an uncertain retirement future, are also being hard hit by a high tax burden. At the federal level, the personal exemption for children, critics charge, has failed to keep pace with income trends and the growth of inflation. Moreover, Social Security taxes have increased seven-fold during the lives of older baby boomers, from 1 percent in 1949 to the current 7.6 percent for employee and employer. Yet further increases have been proposed (Pear). While seldom acknowledged, this increasing tax burden levied on employer and employee is exerting downward pressure on wages, crowding out other pension benefits, and creating disincentives for jobs creation. Increased levels of contingency employment, which shifts the full burden of Social Security contributions (more than 15 percent of wages) – and all other benefit costs – to the worker, are a by-product of escalating employer costs.

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In Kentucky, tax policies are no more family friendly than those of the federal government. Perhaps less. While Kentucky families with children can claim credits and deductions for expenses related to providing for children, they are minimal. The only direct benefit for families with children, according to Elwood Harris, a tax consultant with the Revenue Cabinet, is an offset of \$20 *per child* from the total state income tax liability. Nationally, state and local taxes consume an estimated 11 percent of family income, bringing the average family tax liability to an estimated 35 percent of income (Carlson). In Kentucky, the poorest families may bear a higher tax burden, according to a 1991 study by Citizens for Tax Justice, a Washington-based advocacy group for tax equity. The study of state tax codes found that Kentucky's combination of sales, excise, property and income taxes consumes 12.5 percent of an average family income of \$9,200 (McIntyre et al.).

FUTURE IMPLICATIONS

***The pressure for more age-neutral, family friendly policies and programs will almost certainly mount for states.
The demand for assistance to the old may as well.***

At issue in the years to come will be the level and the sustainability of benefits our society extends to an expanding group of citizens as a consequence of age. While the public policy debate around generational equity will center largely on federal policy, particularly on entitlements, state programs and policies will be directly affected by the debate. From cost-free educational opportunities, to age-specific tax advantages, the pressure for a more age-neutral, family friendly society that helps those most in need will almost certainly mount.

In Kentucky, State Data Center Director Ron Crouch views the disproportionate share of federal funds now being funneled to the old and the well-off as a national crisis in the making. Crouch advocates extended retirement ages and workforce contributions, lifelong education and income redistribution measures, such as means-tested Social Security benefits and broader assistance to needy families with children. Importantly, any such redistribution of resources based on need would also create the opportunity to alleviate poverty among poor elderly Kentuckians.

At the same time, state governments, as well as the federal government, may be challenged in the years to come to fill gaps left by inadequate retirement benefits. Many of the issues that have attended the health care debate may be raised in regard to retirement income. As the prospect of widespread dependency and Social Security insolvency mounts, a more comprehensive pension mechanism may come to be viewed as a fundamental right. The issues of accessibility and availability to pensions could rise on the political agenda and make the uniformity and transportability of benefits a public policy priority. Clearly, inattention to pension and retirement issues will prove costly in the long term.

Broadly, the forces of demographic and economic change compel attention to the shortcomings, as well as the sustainability of our current system. Only the future, however, will determine whether the outcome of the difficult debate ahead will help build a foundation for national consensus or drive deeper wedges between young and old.

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THE PURSUIT OF PROSPERITY

In recent years, work has offered little refuge from the discomfiting changes many have experienced on the home front. Instead, the shock of the new has become an ironic constant in many work lives. Virtually unlimited global competition has placed extraordinary demands on business and industry and, in turn, on workers, who have scrambled to build higher quality products, in less time, at a lower cost. They have adapted to new and contracting management systems and accommodated organizational transformations. At the same time, from the factory floor to the cab of high-tech tractors on the farm, the long-heralded Information Age has indeed arrived. It is altering the way we work and live at a light-speed pace and gradually shifting the energy of our society to the intellectual realm where we will shape new ideas — and accomplish them — in the years to come.

While some of the workplace changes now underway promise to liberate and empower workers, others threaten to diminish the abilities of some to participate in the economic and social mainstream of this nation, to create a deep, impassable gulf between those who have and those who do not. From massive layoffs, to growing demands for skills many workers do not have, to the proliferation of work that does not enable escape from poverty, there is abundant reason for uncertainty about the future before us. In essence, the transformation of the American economy has presented workers, managers and policymakers alike with the most difficult of human challenges, the challenge of change. It is structural and systemic in nature, and few doubt it will be attended by pain and stress, as well as the exhilaration of discovery and enlightenment.

As a consequence, the pursuit of prosperity in Kentucky faces an uncertain future, one policymakers will be expected to anticipate and navigate. They will be challenged to enable opportunity through jobs, workforce training and education, and creative solutions to emerging as well as persistent problems. At the same time, they will be asked to mediate the rising inequalities that are disturbingly evident in our state and our nation. And they will likely be confronted with the cost and consequences of employer divestment of responsibility for the livelihood of a growing number of workers and for a range of social benefits employees have traditionally enjoyed, including health care, sick and parental leave, and retirement income.

Over the long term, some believe we will wrestle with the reality of a diminishing amount of formal work, compressed by the advancement of technology and the relentless pursuit of efficiency. Structural unemployment, which is fast becoming an accepted economic reality, may expand and persist. In response, some believe the European model of reduced work hours and expanded leisure time will prevail as we accommodate these changes. Over the long term, policymakers may be confronted with the necessity of enabling the entry of more workers into an increasingly exclusive workplace. Ultimately, some futurists suggest, a growing gap between workers and available paid labor may challenge our fundamental assumptions about work and its relationship to income. Moreover, it may compel whole societies to redefine work as responsibility for neighbors, communities and the institutions which support them and make human progress a collective responsibility.

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As we struggle with the changing nature of work and its role in our lives here in Kentucky, as well as around the globe, sustainability — meeting the needs of today without compromising those of future generations — is gradually becoming an overarching goal. Its emphasis on development rather than continuous growth and expansion is challenging policymakers worldwide to rethink old assumptions. In the future, sustainability will likely move from its present formative though broadly embraced stage to more concrete standards for future development. They will center principally on the realization of human potential through strategies that emphasize the imperative of environmental integrity and equity, without which true development cannot occur. On the other hand, Professor Dick Dedic, who manages the University of Kentucky's Technology Applications Center, suggests "Our ability to effectively respond to the challenges of the future will be limited only by our personal creativity and openness to structure-less thinking." Whatever shared vision of Kentucky's future unfolds and shapes the public agenda, policymakers, like workers and managers around the world and around the corner, will be confronted with the challenge of change. Perhaps as never before, knowledge will provide the power needed to meet that challenge.

CHANGING PARADIGMS

From a knowing vantage point enhanced by years of rigorous study and careful observation, social philosopher Peter F. Drucker views the era in which we now live as epochal. Our society, he suggests, is in the process of rearranging itself, transforming the institutions that have historically been its cornerstones and becoming something that would be unrecognizable to most of us. The extraordinary era in which we live is characterized by rapid change driven by technology and our ongoing struggle to harness it and adapt to the consequences of its broad-based application. It has abbreviated the distance between points around the world, advanced global commerce — and competition — and forced a reckoning with assumptions about the organization and conduct of work. At the same time, it has raised the skills ante to new, ever rising heights that are making flexibility and lifelong education a growing imperative.

Moreover, technology promises to make the mantra of the 1960s, “power to the people,” a reality, as electronic networks override and render obsolete the hierarchies and paradigms that have dominated work, government, and the larger economy, as well as our fundamental world view. The former gatekeepers of information are simply being by-passed by the computer literate. For them, empowerment is no longer occurring at the discretion of industry or government leaders, but as the natural outcome of free-flowing information and virtually unlimited opportunities to contribute and participate, if not in one’s own immediate environment, in a worldwide community of users with similar interests. The increasing affordability and ready availability of information is gradually enriching public discourse and diffusing power to citizens, informing decisions they make as consumers, voters and workers. Our ability to tap that power here in Kentucky, to raise computer literacy levels and broadly expand access, will in many ways determine our future. Already, the exhilarating, at times painful, transformation of the pursuit of prosperity is well underway.

A DEMANDING WORLD MARKETPLACE

A seemingly limitless world marketplace is challenging Kentucky firms and their employees to meet rising product and performance goals.

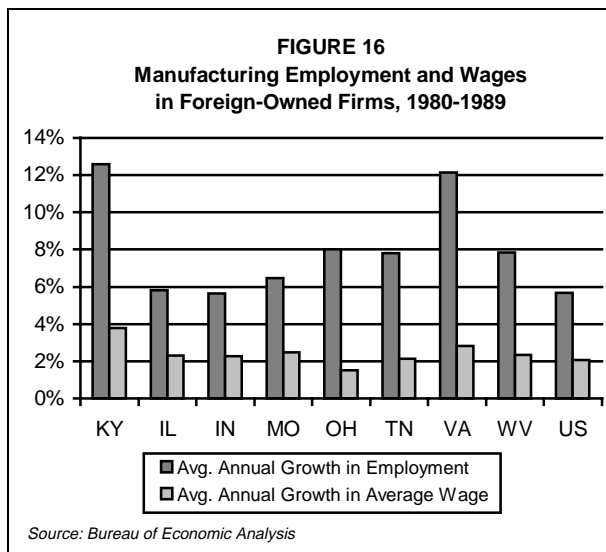
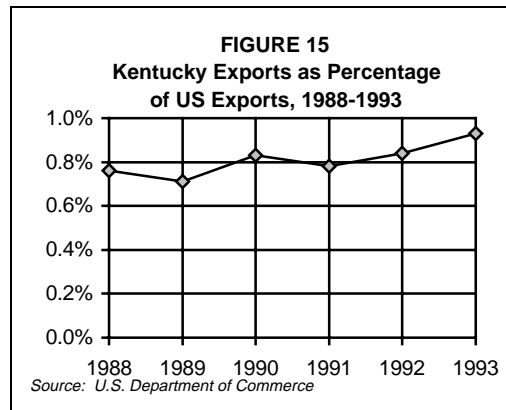
One of the most profound influences on the American economy in recent years has been the globalization of business and industry. More American companies are doing business abroad and more foreign companies are doing business here at home than ever before. It is a trend which shows no sign of abating. In Kentucky, global market forces are adversely affecting some of our industries even as the international marketplace offers our state new opportunities for job growth and prosperity via exports and foreign direct investment. As much as 90 percent of the nation’s economic growth over the past five years has been credited to U.S. exports, and foreign direct investment took off during the past decade and has continued to grow into the 1990s. However, if Kentucky is to make the most of these opportunities, it must

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explore ways to improve the ability of its organizations, its managers and its workforce to satisfy the growing demands of the global economy.

In recent years, Kentucky's rate of participation in the global economy has accelerated, as state exports have risen at a faster pace than the nation as a whole and have captured an increasing share of U.S. exports — \$4.3 billion in 1993 alone. While Kentucky exports comprise only about 1 percent of all U.S. exports, they nevertheless rank 26th among all states. Kentucky will likely see growing exports of agricultural and lumber products, some manufactures such as automobiles and parts, and tourism, to name but a few products with export potential.

Kentucky has also seen increased internationalization in the ownership of enterprises located within the state. During the past decade, manufacturing employment in foreign-owned firms grew at an average annual rate of 12.6 percent in Kentucky. Among surrounding and other southeastern states, Mississippi and Virginia (12.3 and 12.1 percent, respectively) had annual growth rates close to



Kentucky, but none were higher. In fact, no neighboring state other than Virginia had employment growth above an 8 percent annual rate. Manufacturing wages in foreign-owned firms have grown fastest in Kentucky as well. Between 1980 and 1989 wages grew at an average annual rate of 3.8 percent for Kentucky, while annual wage growth for the entire Southeast averaged 2.2 percent. The second-highest annual wage growth in the region was Louisiana's 3.1 percent. Likewise, none of the neighboring midwestern states enjoyed nearly the wage growth Kentucky did during the 1980s.

These trends clearly show that Kentucky is currently quite competitive in attracting manufacturing jobs in foreign-owned firms. Furthermore, the wages paid for these jobs are rapidly approaching the national average and have already surpassed the average wage paid to manufacturing employees in foreign-owned firms in the southeastern United States.

Much of the literature on foreign direct investment in the United States agrees that foreign companies help the U.S. economy by introducing advanced technologies and by investing in higher-paying industries. According to the U.S. Department of Commerce, Japanese firms in particular seem to positively affect employment by building new plants in industries in which they hold a competitive advantage, rather than taking over existing firms or plants. One of the

competitive edges which Japanese firms particularly enjoy is a sophisticated organizational and management system, which focuses on the interdependence of production factors. These operational and management techniques are increasingly necessary for a firm to survive in the new global economy, with its unrelenting demands for high quality, reasonably priced and readily available products.

From every indication, the high standards for management and operations in business will continue to rise. They have driven dramatic change in the manufacturing sector and have strongly influenced other industries, as well as the public sector. The response has been a radical restructuring or reinvention of organizations. Many have been “flattened,” as layers of middle managers have been eliminated through downsizing. In turn, expanded authority has been extended to front-line employees, who are empowered to make decisions, form and lead problem-solving teams, and champion the pursuit of perfection. In the new workplace, ideas, innovations, and solutions to problems are expected.

The “lean manufacturing system” employed by Toyota at its facility in Georgetown, for example, is recognized as one of the most advanced in the world. It is characterized by such qualities as a highly skilled, cross-trained workforce; participatory, team-based management; broadly empowered employees; just-in-time inventories; and defect-free product goals (Womack et al.). A pilot program sponsored by Toyota at the University of Kentucky is presently exploring the transference of these techniques to smaller Kentucky firms to increase their competitiveness. Other exemplary manufacturing and human resource systems are being advanced by Kentucky employers, such as Ford Motor Company and Rohm & Haas Chemical Company in Louisville.

Expanded authority has been extended to front-line employees, who are empowered to make decisions, form and lead problemsolving teams, and champion the pursuit of perfection.

Equally essential as teaching organizations how to compete is teaching employees how to work in the new global economy. Even as the state’s participation in the global economy is expanding, its success is constrained by a gap in skills and resources, according to Dr. John Walker, Director of the University of Kentucky’s Center for Robotics and Manufacturing Systems. Walker observes that most Kentucky firms, the overwhelming majority of which are small (fewer than 500 employees) and therefore more vulnerable to market forces, need management expertise to assist with technology applications, marketing, financial analysis, human resource issues, strategic planning, and accounting. In a 1991 resource needs survey conducted by the Kentucky Science and Technology Council and the Kentucky Cabinet for Economic Development, small- and medium-sized state manufacturing firms cited the need for a range of information, laboratory and regulatory services. Many believe a skills gap is behind such unmet needs.

According to the Bureau of Labor Statistics, Kentucky’s recent employment growth in the occupational group which includes engineers, scientists and other professionals essential to the development of new products, manufacturing methods and enterprises has lagged behind that of the nation as a whole. While employment in this group grew 4.4 percent in Kentucky from 1986-1991, it increased 15.4 percent nationally. Trends such as this, according to the Kentucky Science and Technology Council, have significant long-term implications: the strong likelihood of an ongoing “brain drain” — the loss of many of Kentucky’s best educated and brightest young people to job opportunities elsewhere; an inadequate foundation of research and development in emerging industries that weakens their competitiveness and, in turn, limits

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the opportunities they provide; and a shortage of accessible consultants who could help existent firms achieve higher levels of performance.

What, therefore, can we conclude about the promise of globalization for Kentucky's economy? Presently, Kentucky is taking advantage of the global economy to lead its neighbors and the nation in a number of categories — export growth, manufacturing employment growth in foreign-owned firms and manufacturing wage growth in foreign-owned firms. But these are short-run gains. They offer a glimpse of Kentucky's promising future in the new international economy, but it is a future that is by no means guaranteed, for there are trends in human resource development which do not bode well for the state.

To reverse the trends which may hinder our progress, the Kentucky Science and Technology Council recommends, in a 1994 report, the broad-based adoption of "high performance" techniques, as practiced by Ford, Toyota and Rohm & Haas, among others. To advance this vision, the report suggests engaging the considerable base of knowledge and experience key firms in the state have to offer in the development of a comprehensive plan for the state. It also recommends an audit of state policies and regulations to identify and eliminate impediments to high performance, the formation of teams to assist firms in making the transition, and incentive grants to support the creation of high performance networks.

In order to compete in the global economy, Kentucky must improve its foundation of technical and scientific expertise, which, by most measures, is inadequate to meet the economic challenges before us. Kentucky not only needs to expand opportunities for intelligent, capable and creative people to put their abilities to work here, it must work to expand its brain trust, those with solid scientific and technological foundations and with advanced degrees, areas in which Kentucky lags behind much of the nation. Moreover, the current and future workforce must become fluent in the new languages of production and management that are spoken and practiced by successful firms around the world. In short, we must do more and more, reach higher and higher to gain a solid footing on the world stage where the winners and losers of tomorrow will be determined.

THE INFORMATION AGE ARRIVES

While painful to those left behind, technology is accelerating the rate of change and creating an explosion of opportunities for highly skilled workers and innovative firms.

No single force of change has influenced workplace skill levels as much as the arrival of the long-heralded Information Age. The diffusion of information technology is propelling a shift from what has been called a hardware society to a software society, one that places high value on intellect and creativity and little on brawn. Signaling the wave of the future, U.S. companies spent more for computing and communications equipment in 1991 than for industrial, mining, farm and construction machinery combined (Stewart & Furth). The advance of information technology evidenced by such unprecedented investment is complicating the pursuit of prosperity and accelerating the rate of change. While it will exact an uncertain economic, social and human cost, it is also expected to yield extraordinary breakthroughs that may improve quality of life for all.

While history, as well as recent studies, suggest the long-term results of the technological revolution now underway will be more — not fewer — jobs,¹ short-term losses may be devastating. Today, U.S. manufacturers employ roughly the same number of production workers as they did in 1946, but they produce five times as many goods (Ehrbar).

Technology enabled much of this productivity leap, and its impact is expected to intensify. “Technological unemployment,” suggests Harvard economist Juliet Schor, is an unavoidable consequence (Clark). As technology multiplies the demand for highly skilled workers, it is increasingly unlikely that displaced unskilled workers will find replacement employment at comparable wages and benefits. Gaps between needs and resources are expected to persist. While the economy of scale realized by technological advances is expected to reduce the cost of consumer goods, stagnant wages and rising inequality may render such benefits elusive to many.

In order to capture opportunity created by technology, Kentucky will be challenged in the years ahead to close significant gaps in its human infrastructure. As measured by the Washington-based Corporation for Enterprise Development, which evaluates a wide range of social and economic factors in its assessment of the development potential of states, Kentucky’s most significant obstacles to expanded prosperity are income inequity, lagging educational achievement and an insufficient base of technological resources. The latter, cited by a range of observers, includes a “brain trust” that did not compare favorably to other states in 1994. Nationally, Kentucky ranks 44th in patents issued, 47th in Ph.D. scientists and engineers in its workforce, in science or engineering graduate students, in university research and development, and 49th in federal research and development dollars.

As previously noted, the technology needs survey found that these inadequacies may be costing small- and medium-sized firms who lack sufficient access to expertise in a range of areas. Moreover, only 16 percent of the chief executive officers of surveyed firms reported that their firms were intensive users of technology. Importantly, more than 50 percent of respondents cited workforce as most critical to the future of their firm’s future. It is precisely this workforce — Kentucky’s human capital — that will determine the level of technological integration and innovation and, hence, the future viability of many firms.

In health care delivery alone, it is estimated that billions of dollars will be saved nationally through use of the Information Superhighway.

While human capital remains a weak link in Kentucky’s technological future, policymakers have taken steps to close it through investment in a technological infrastructure that could become a powerful magnet for the brain trust needed to maximize future development potential. The expanding commitment of state universities to technical assistance and applied research and development offers extraordinary promise. The University of Kentucky’s Technology Applications Center, the Center for Robotics and Manufacturing Systems, and the planned Coldstream Research Park; the University of Louisville’s Telecommunications Research Center; Northern Kentucky’s planned research park; and economic development centers at both Eastern and Western Kentucky Universities form an important and emerging cluster of applied research centers with an explicit mission of service to the state. They are

¹ Massachusetts Institute of Technology researchers who examined manufacturing firms that invested in information technology from 1971 to 1989 found that employment declined as investment increased, but the loss of jobs was not significant. For every 1 percent rise in investments in information technology, employment declined by 0.13 percent. The authors also concluded that little evidence of direct exchanges of workers for computers could be detected (Aley, 1994).

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augmented by the Kentucky Technology Service, the state's first comprehensive system for technology transfer.

This emerging technological infrastructure will soon be complemented by a series of strategic research and development centers modeled after European centers that combine manufacturing expertise with university research capability. Authorized by the Kentucky General Assembly in the 1994 session, the centers, now in the planning stage, are expected to begin operating in 1996. By advancing the application and refinement of technology and, in turn, broadening our base of human capital, these centers are expected to facilitate scientific discovery and its application to products and processes. In so doing, the centers should enhance the competitive profile of existent industries — and the state — attract further investment to the state and create new opportunities. Policymakers, however, will be challenged to move the benefits these centers may yield beyond the periphery of the triangle they form and into regions where need is most acute.

Importantly, plans for the Kentucky Information Superhighway (KY I-Way), an electronic infrastructure that will support highly sophisticated communications, are among the most advanced in the nation. They call for a statewide network that will connect government at all levels, schools, universities, and libraries. Access will be available in all 120 counties. The planned broad-band network will enable the transmission of voice and video and make way for new applications of technology in medicine, industry, and education and training. In health care delivery alone, it is estimated that billions of dollars will be saved nationally through the use of video conferencing for physician consultation, the electronic transport of patient information and health care claims, and the storage of inventory records (Greene). As the primary user, state government will be able to provide citizens with ready access to a range of information and services from remote, single-source locations and improve citizen participation and customer service.

For Kentucky businesses and industries, the KY I-Way will provide direct links to existent customers, as well as access to new markets and the resources to cultivate them. However, as in many other arenas, we are constrained by acknowledged low levels of reliance on technology. In order to increase their competitiveness, it will be necessary for Kentucky firms to raise levels of computer literacy through expanded investment in equipment and training and to begin utilizing the wealth of data and information available electronically in shaping a

stronger future.

In order to avert further economic decline, plans to meet the coming technological and educational challenge must focus as far into the future as is uncomfortable.

Dr. Dick Dedic

As the primary user of the I-Way, the state of Kentucky will be able to use this powerful resource to strengthen human infrastructure, to broadly expand education and training opportunities throughout all regions of Kentucky. Our larger, long-term goal, suggests Professor Dedic, must be “the achievement of long-term economic and social good as opposed to more narrow and historical goals of short-term profitability.” Building on the state's base of experience in satellite communications, Dr. Dedic believes Kentucky can use the I-Way to present public

education in “a uniformly excellent manner to all students.” Plans to meet the coming technological and educational challenge, he asserts, must focus as far into the future as is *uncomfortable* in order to avert economic decline. As the rate of change and discovery for scientific and technical knowledge increases, Dr. Dedic notes, the knowledge base of the international

community will expand exponentially, leaving a less-than-visionary Kentucky even further behind.

For Kentucky's rural communities, opportunity may expand as technology redefines work and the workplace. As University of Mississippi Professor Vaughn Grisham observes, technology is gradually freeing more of us to live where we want to live. As Kentuckians will attest, many of us prefer small towns. And technology is emerging as a potent antidote to urbanization. In the future, a rising number of task-oriented, electronic "virtual corporations," small companies, satellite outposts of larger firms, and independent consultants may enable more people to enjoy rural or small town life while they race with the world. Futurists Joseph Coates and Jennifer Jarratt predict that "distributed work," work performed away from a central location, usually electronically, will be performed by 20 percent to 25 percent of the workforce in the year 2010 (Coates & Jarratt).

The level of participation in regions throughout Kentucky may be enhanced in the years to come by rural "televillages," the pilots of which are being established in the Elizabethtown and Pikeville areas. When fully operational, these televillages will provide regional public and private services planned and coordinated by community-based teams. Each is being designed to meet the unique needs of the region in which it is centered and to create a center for the exchange of ideas, information and services. Services will include education and training, information from on-site brokers who will serve citizens who lack computer skills but need information, and ready access for those who have skills. The architects, the Kentucky Science and Technology Council, South Central Bell, GTE, AT&T, Herman Miller Inc., and the Cabinet for Economic Development, view the establishment of these rural televillages as a tool that will enable development from within, by providing access to information and the global marketplace and honing the skills to utilize it.

On a number of fronts, Kentucky is working to address deficits in human capital that continue to inhibit our ability to create and expand opportunities and to build an advanced technological infrastructure that will serve as a magnet for intellect and investment. The plans now underway offer enormous promise while they compel sustained initiative and investment in the human resources and tools that will enable Kentuckians to prosper in the 21st Century.

FUTURE IMPLICATIONS

Intellectual capital will be the currency of tomorrow's dynamic and difficult-to-anticipate economy.

The context in which enterprises and workers must pursue prosperity today is dynamic and uncertain. World markets appear to hold boundless potential but they are forcing discomforting and even painful changes. In short, as Kris Kimel, President of the Kentucky Science and Technology Council, observes, we do not know exactly where we are heading, only that we must be ready for what lies ahead.

The one certainty the future holds is change. As Dr. Dedic suggests, "The single most critical factor in the future of science and technology is the change in the rate of discovery and creation." The ability to successfully negotiate the light-speed development of markets, products and professions ahead will almost certainly be the most valuable of assets. Ultimately, this human capital — our intellectual prowess, flexibility and creativity — will determine whether we make gains or fall further behind in the pursuit of prosperity, and, increasingly, whether we even gain entry to this all-important race. Consequently, the future compels continued and expanded investment in aggressive recruitment strategies aimed at enriching the

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brain trust of our universities, in technical assistance and access to capital for emerging and existent firms, in lifelong training and education, and in the physical infrastructure to support and advance development.

A SHIFTING ECONOMIC FLOOR

Historically, Kentucky's economy has depended heavily on the core industries of mining, agriculture, and manufacturing, each of which is being transformed by a combination of forces, near and far. The larger context of change has shaped the fortunes of these bedrock industries and, in turn, those of citizens and communities who depend upon them for their livelihood. While mining and agriculture remain vital to the economic well-being of the state, trends suggest that both industries face uncertain future prospects. Their contributions to the livelihoods of Kentuckians have waned. Likewise, in spite of emerging strength, manufacturing employment is predicted to decline over the long-term. As a consequence of these anticipated changes, the Commonwealth's future economic prosperity will hinge on its ability to successfully negotiate a shifting economic landscape, to anticipate and skillfully manage coming changes, as well as those that are already well underway.

In order to shape the best possible future for Kentuckians, numerous untapped resources, including the thousands of workers who need training and education in order to fully participate in the economic future of the state, must be cultivated and nurtured. Possible points of leverage for the state's future lie in familiar but not yet fully realized arenas. Kentucky's manufacturing base, for example, has been strengthened in recent years by the expanding presence of the automotive industry, which has historically spawned satellite industries, new products and, importantly, high-wage, high-skills jobs. Coupled with an expanded commitment to research and development, this foundation could enable Kentucky to weather predicted declines in manufacturing employment.

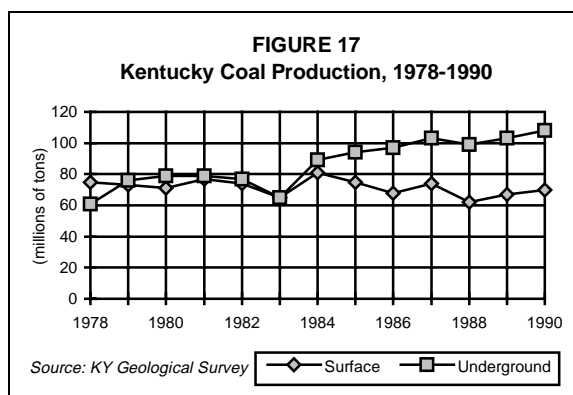
At the same time, Kentucky's vast natural resources, including coal, oil, natural gas, limestone, and timber, as well as alternative crops, offer immense opportunity for innovation and new products development. Limestone, which is abundant in Kentucky, is, for example, now being used widely in scrubbers. The promise of value-added forest products continues to beckon investors and compel policymakers to act aggressively to capture the full benefit of this plentiful and sustainable natural resource. Emerging biomass technology also raises the possibility of alternative energy sources, and new, more environmentally sound manufacturing processes and products, as well as alternatives to declining crops. Such crops may help illuminate paths of opportunity for Kentucky farmers, who face the almost certain decline of their biggest crop — tobacco. Tourism development also offers the opportunity to tap more of our richest natural resource — the people of Kentucky — and, in the process, bolster the economies of under-developed regions while building a broader appreciation of Kentucky's beauty, culture and heritage.

Finally, the future prosperity of Kentuckians will depend to a great extent on our ability to accommodate, master and harness rapid-fire changes in technology. These changes will influence virtually every workplace and every worker. A solid foundation of scientific and technological skill and reliable, fast-track mechanisms for identifying and helping meet the needs of business, industry, and workers could enable greater prosperity. Without Information Age prowess, Kentucky's future will likely yield more of the same persistent poverty that has for too long defined who we are. With it, we can determine who we want to become, and we can capture more of the prosperity that has eluded so many Kentuckians for so long.

COAL'S UNCERTAIN FUTURE

The greatest uncertainty for the coal industry lies not in the availability of resources, but in the nature of the regulatory and technological environment that will develop in the coming decades.

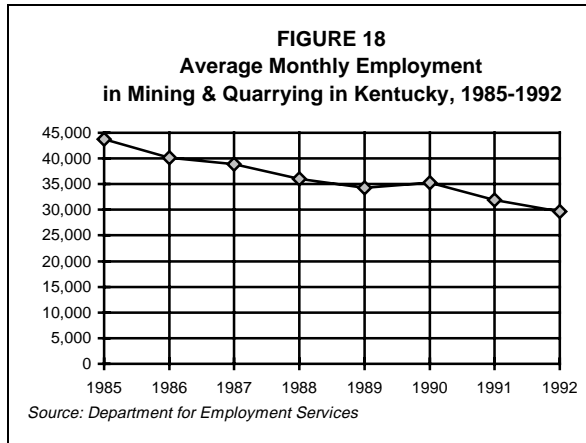
Coal is Kentucky's principal and most valuable mineral, one that has been mined by hand and machine from the state's eastern mountains and its western plains for 200 years. Long an anchor for Kentucky's economy, the coal industry, which has endured boom and bust cycles, has enabled many Kentuckians to prosper and has improved the quality of life throughout entire regions. More recently, the advent of labor-saving technology, slow growth in demand and prices and increased competition from western states have undermined the prosperity of miners, their families and the communities in which they live. As a result of converging forces, external and internal, these losses may deepen in coming years. Though Kentucky has long ranked among the top three coal-producing states in the nation, along with Wyoming and West Virginia, the industry's *long-term* outlook is uncertain.



According to the Kentucky Geological Survey, coal occurs naturally in 57 of Kentucky's 120 counties, 37 of them in the eastern coalfields and 20 in the western part of the state. Pike County led eastern Kentucky production with 22.7 million tons during fiscal year 1992-93, while Webster County led western production with 12.6 million tons. During that same fiscal year, according to the Kentucky Department of Mines and Minerals, 174.3 million tons of coal were mined statewide, the gross value of which exceeded an estimated \$4

billion. The 1992-1993 output trailed the record 1990 output of 179.4 million tons by approximately 5 million tons.

Over the years, the combined effects of competition, costs of equipment and environmental remediation have forced many small mining operations out of business. More recently, widespread consolidation of the industry has occurred, a trend some analysts believe will continue, resulting in fewer companies — and fewer jobs (Stroud). According to the Kentucky Department of Mines and Minerals, the total number of coal mines in Kentucky fell dramatically in the early 1990s, from 1,769 mines in 1990 to 752 mines in 1992 — a 58 percent decrease. During that period, the number of surface or strip mines in the state declined 71 percent, from 943 to only 270. In turn, surface production dropped from 70 million tons to 65 million tons, reflecting the depletion of surface reserves, the increasing costs of reclamation and a progressive shift to deeper coal seams. The number of underground mines also fell 42 percent, from 826 to 482, even as production increased from 108 to 109 million tons.



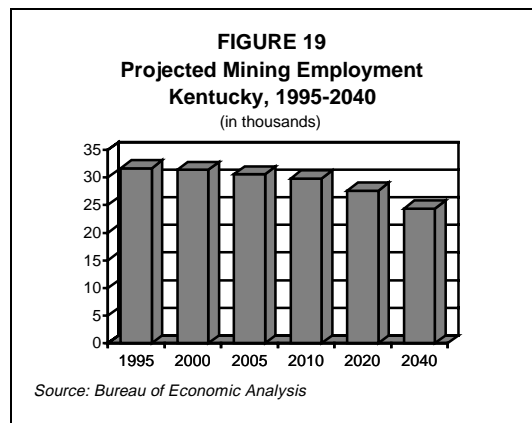
The declining number of mines has been accompanied by a long downward spiral in coal industry employment. According to the Bureau of Labor Statistics, mining employment peaked 54 years ago in 1940, when 61,800 Kentuckians worked in the mining industry. By 1993, fewer than half the 1940 peak — 27,500 miners — were employed in mining in Kentucky. Technological advances have been a double-edged sword for Kentucky coal, expanding production while diminishing labor force needs. Productivity in the coal industry has increased

232 percent in output per miner per year since 1978. In turn, thousands of coal miners have been displaced. Many have found few opportunities for replacement income in the relatively undiversified economies of some Kentucky coal counties.

The importance of coal industry employment in Kentucky is highlighted in a recent study of Pike County by the U.S. Bureau of Mines. In Pike County, coal mining and the service industry each provide about 22 percent of total county employment. However, while the service industry provides only 13 percent of Pike County's income, coal mining provides 46 percent (Geroyan, et al.). Statewide, the coal industry paid \$1 billion in wages in 1992 (Kentucky Coal Marketing and Export Council & Kentucky Coal Association).

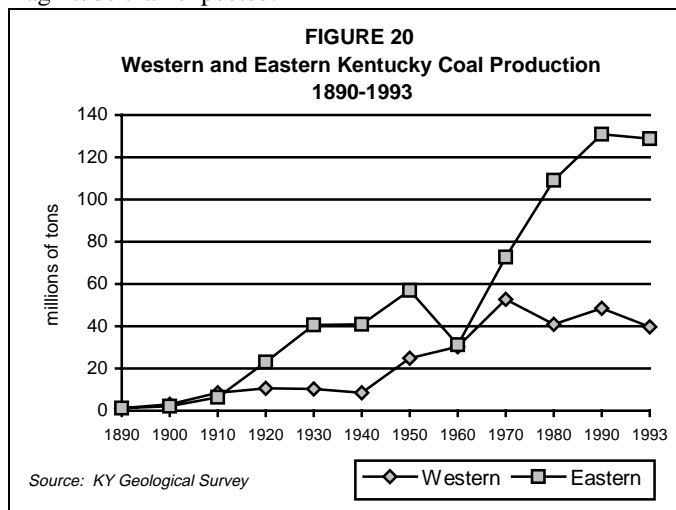
Long-term projections by the Bureau of Economic Analysis (BEA), suggest that employment in mining may remain relatively stable over the next 25 years. Under this scenario, the industry would not be expected to experience the dramatic losses in employment which have occurred in recent years. Almost half the predicted loss of jobs between 1995 and 2040 would be lost after the year 2020. As illustrated, BEA projects a loss of around 7,000 workers over the next 45 years, half the number of jobs lost between 1985 and 1993 alone. However, Kentucky may lose more coal industry jobs as a consequence of environmental regulations that are expected to increase competition among low-sulfur coal-producing states and have a particularly adverse impact on western Kentucky where reserves are high in sulfur content. Moreover, unfavorable national energy policies that emphasize natural gas and other resources are expected to continue affecting the market.

In addition, a number of long-term utility contracts are reportedly nearing expiration, which will propel new buyers into the marketplace. Competition for these supplies is expected to be intense and to exert downward pressure on the price of coal, yet another force that could adversely affect employment over the long term (Stroud).



The Context of Change

The Kentucky Geological Survey estimates that Kentucky's total remaining coal resource is approximately 91 billion tons, including 25 billion tons adequate for underground mining. However, only about half of the remaining coal resources are available for mining because many of the coal seams are too thin for deep mining. A significant portion of the roughly 45 to 50 billion tons of coal available for mining may not be economically recoverable with today's technology, according to a study by the U.S. Bureau of Mines. This suggests that some traditional coal-producing regions may soon experience resource-depletion problems of greater magnitude than expected.



Despite the possibility of resource depletion in some areas, Kentucky should still be able to maintain its historically high level of coal production for the next few decades. Eastern Kentucky coal production rose appreciably between 1960 and 1990, but in the past few years has begun to plateau. Western Kentucky coal production is actually somewhat lower than it was 20 years ago, although the decline is not severe. If production levels remain fairly stable, Kentucky will produce

the same amount of coal in the next 40 years as it produced over the last 75 years. However, it is likely that production may begin to gradually decline in 20 to 30 years, due to the nature of the production cycle for an exhaustible natural resource.

Assistant State Geologist Dr. James C. Cobb observes that the mining of mineral reserves typically has three phases: growth, peak and decline. Whether or not Kentucky has reached its peak and how slowly or how rapidly decline will occur is impossible to determine with precision, but a number of factors suggest Kentucky's peak may be nearer rather than more distant on the horizon. In eastern Kentucky, for example, fewer large blocks of coal are available for mining, as a substantial portion of the region's 200 topographic quadrangles, each of which covers 60 square miles, has been mined over. In some quadrangles, significant reserves have been left behind, but tapping them often means assuming potentially costly environmental liabilities left with unreclaimed land.

However, the greatest uncertainty for the coal industry lies not in the availability of resources, but in the nature of the regulatory and technological environment that will develop in the coming decades. Technological advances may make coal more or less competitive with other energy sources over time, or may dramatically increase or decrease the demand for coal as an energy source. The availability of other energy sources, such as natural gas, may also become more important issues in the future. In short, even if it were known precisely how much coal Kentucky would be able to produce 100 years from now, it would still be impossible to predict what kind of market would exist for that coal.

Coal's future is also being influenced by an ascending worldwide environmental movement that has become increasingly focused on sustainability as a long-range goal, one which many believe is incompatible with reliance on coal. Coal extraction, particularly by means of surface or strip mining, has historically had significant environmental consequences, although they

have been mediated by modern reclamation methods. More recently, carbon emissions from coal-fired utilities, the market for an estimated 85 percent of the nation's coal, have been identified as a possible contributor to global warming, while sulfur emissions are linked to acid rain.

Federal and state environmental regulations are expected to have an as yet unrealized impact on the production and utilization of coal. The 1990 Clean Air Act Amendment, also known as the Acid Rain Bill, specifically addressed sulfuric emissions from coal, requiring utilities or companies that burn high-sulfur coal to remove the sulfur, either through the installation of scrubbers or by shifting to low-sulfur coal. Most of the 261 generating units in the nation have shifted to low-sulfur coal for the time being, according to the Federal Energy Information Administration. One prominent Kentucky utility, which has historically depended on Kentucky coal, has begun to purchase lower-sulfur, western state coal. This may hurt the state in the short term, as all western Kentucky coal has a medium- to high-sulfur content and, contrary to usual assumptions, only about half of eastern Kentucky coal is low in sulfur content. Yet the demand for high-sulfur coal may be rejuvenated by the beginning of the next decade, by which time virtually every coal-burning unit is supposed to have scrubbers.

Another concern for the future of the coal industry is the possibility that the Federal Environmental Protection Agency will promulgate new clean-air regulations aimed at trace elements in coal, such as mercury, arsenic and selenium. As many as 18 trace elements have been identified for possible regulatory attention. While advanced technologies which remove virtually all trace elements have been developed, utility compliance strategies aimed at reducing sulfur emissions may or may not address trace-element emissions.

Concerns about solid waste disposal are expected to influence the future of the coal industry as well. Coal-fired utilities that shift to scrubbers confront logistical questions around accumulated sludge disposal. Kentucky recently permitted the return of fly ash from Florida to the original mine site. In the future, the pressure to permit the return of fly ash as a contractual condition is expected to increase. The environmental impact of fly ash on groundwater supplies, however, has yet to be fully determined.

As a consequence of increasing and uncertain environmental regulations, the spectre of additional compliance cost burdens continues to loom on the horizon for utility companies and others who use coal. Technological change further clouds our vision of the long-term future for Kentucky's coal industry. For the next few decades, at least, coal production in the state is likely to remain at high levels and will likely benefit from the widespread installation of scrubbers in the nation's coal-burning utilities. Nonetheless, Dick Dedic, manager of the University of Kentucky's Technology Applications Center, says that Kentucky should work to create new and more environmentally friendly methods of energy production through the use of coal. Kentucky, Dr. Dedic suggests, has the intellectual capability to make this resource competitive on both "the environmental and dollar bottom lines."

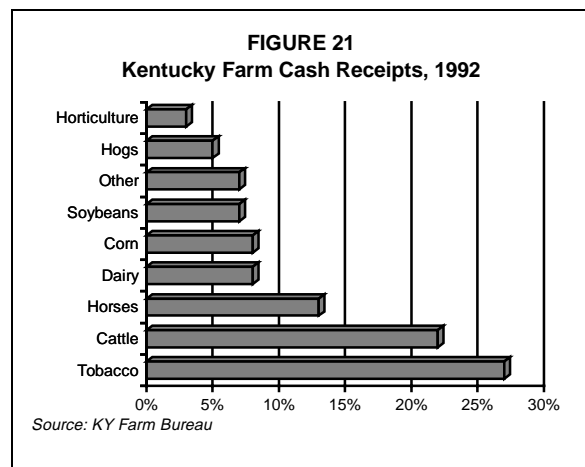
FARMING AT A CROSSROADS

The vulnerability of the key crop in Kentucky's farm economy portends an uncertain future for farming and farmers.

Like coal, agriculture's contribution to the state's economy has waned in terms of both income and employment, even as farm production increases. As Dr. David Freshwater, professor of agricultural economics at the University of Kentucky, notes, farming's changing role in the lives of Kentuckians can be traced to larger national and international trends that are influencing supply and, in turn, cost. At the same time, advances in technology and agricultural science have expanded production per acre and made it far more costly for small farmers to compete.

The changing role of farming is evident, first and foremost, in the amount of land currently under cultivation in Kentucky. The total amount of farmland in the state has dropped from 21 million acres in 1930 to 14 million acres in 1994 — a 33 percent decrease. Although cultivated farmland has been decreasing throughout the country, the rate of reduction in Kentucky is far more dramatic than the 7 percent decline experienced by the nation as a whole during the same time period. From 1980 to 1990, Kentucky lost an estimated 28 percent of its farm population, according to the U.S. Census Bureau, a reflection of the declining role of farming in the lives of rural Kentuckians. At the same time, the value of agricultural output in Kentucky has continued to steadily expand, reflecting the economy of scale realized from more advanced equipment and farming methods.

The long-term health of Kentucky's historically important farm economy is also being influenced by the state's heavy reliance on two farm commodities — tobacco and cattle — with some counties depending heavily on only one commodity for their livelihood. While some observers believe Kentucky's farm economy is sufficiently diversified, others foresee significant future problems. Many farmers have begun to experiment with new crops and products, from tomatoes to bedding plants, but few have found economically feasible alternatives. Others have resisted change altogether. And there appears to be little incentive for farmers to diversify as long as tobacco remains lucrative. Trends, however, suggest that in the absence of expanded diversification, agriculture may play a declining role in the lives of Kentuckians, even as the value of state crops and products rises.



While Kentucky's agricultural base consists of several commodities, its components are not proportionate in their share of the overall farm economy. Agriculture in the Commonwealth generated \$3.2 billion in cash and marketing receipts in 1992; however, tobacco and cattle accounted for 49 percent of those receipts (27 percent and 22 percent, respectively). Other major farm commodities in Kentucky were horses (13 percent), dairy and corn (8 percent each), soybeans (7 percent), hogs (5 percent) and horticulture (3 percent).

Consequently, Kentucky farmers are heavily dependent on two agricultural

products, one of which is threatened with precipitous decline, and as a consequence, is extremely vulnerable to market forces beyond their control.

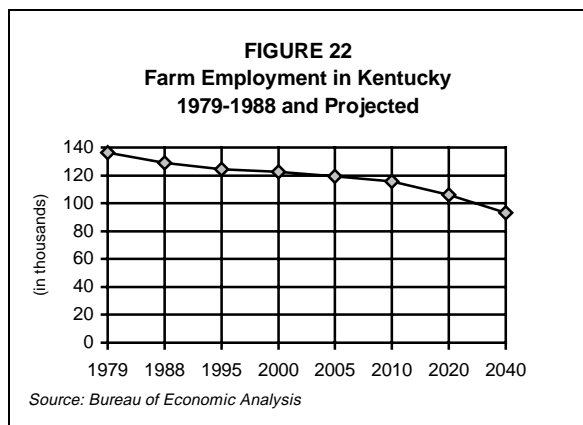
The tenuous future before Kentucky burley tobacco, which has weathered attacks from several fronts, presents the most significant threat to farming and farmers in the state. A November 1994 study by the Kentucky Long-Term Policy Research Center identified four major trends influencing the future of burley tobacco. They are: increasing taxation on cigarettes at the state and federal level; heightened awareness of the health risks associated with use of tobacco; declining levels of domestic tobacco content in U.S.-manufactured cigarettes; and the increasing abundance of high quality burley on the world market. The Center study, which included a survey of tobacco experts, concluded that Kentucky's basic burley quota could decline as much as 40 percent over the next 10 years as a result of these trends.

Due to the momentum many of these trends have already gathered, the downward spiral is well underway for burley tobacco. While Kentucky produces some of the highest quality burley in the world, exports have slowed dramatically in recent years. Over the 1980-1990 decade, exports of tobacco leaf onto the world market expanded by 136 percent. However, from 1990 to 1993, exports of unmanufactured leaf decreased by 20 percent, according to the U.S. Department of Agriculture. This recent trend reflects the fairly rapid development of tobacco as an agricultural crop in locations remote from Kentucky but in closer proximity to growing global markets for cigarettes.

The impact of these trends is greatly magnified when the structure of agriculture in Kentucky is closely examined. Tobacco reigns supreme among agricultural commodities in Kentucky. It is grown on more than 60,000 of the state's 90,000 farms. According to Dr. Freshwater, tobacco's importance is largely attributable to the state's tobacco program. "Tobacco provides farmers with relatively stable net returns per acre. Thus, virtually all farmers choose to raise tobacco, but they are limited in the amount they can produce. Limitations on the transfer of production quota have helped preserve farm numbers in Kentucky by providing even the smallest of farms with a significant source of income." Overall, the structure of the tobacco program has ensured a measure of equity, spreading the wealth of tobacco among the state's farmers.

Those who eye Kentucky's agricultural future predict that Kentucky, the second largest tobacco producing state in the nation, may be severely affected by the anticipated reduction in demand. In 1992, Kentucky' farmers produced more than 500 million pounds of tobacco valued at \$877 million, an economic contribution that reaches well beyond the almost \$900 million it generates in income for farmers. Some estimate that money generated from the sale of tobacco could roll over as much as two to three times in local economies. A study conducted by Price Waterhouse in 1990 also suggests that a significant share of state employment, as many as one of every nine jobs, may be directly or indirectly tied to tobacco. The study estimated that tobacco contributed more than 135,000 jobs, generating in excess of \$2.1 billion in wages and benefits to Kentucky.

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Tobacco's prominent role in Kentucky's farm economy and technological advances in agriculture may figure in a projected continuation of the downward spiral that farm employment has been on for years. Building on a decade of decline, during which farm employment fell by 11,600 between 1979 and 1988, BEA analysis suggests that farm employment in the state may drop dramatically over the next 45 years. Between 1995 and 2010, the analysis suggests that nearly 10,000 jobs may be lost in farming. The most significant

drop is projected to occur between 2010 and 2040, when an additional 22,400 jobs are projected to be lost, according to BEA.

Kentucky's second leading agricultural commodity is cattle. Nationally, the state ranks eighth in the production of beef cows, 95 percent of which are sold as finished or fat calves (Sprague). Ironically, the most significant problem facing the state's cattle production may be a result of the number of small farms and part-time farmers who raise cattle. According to the Kentucky Farm Bureau, the average herd of the state's 1.1 million head of beef cattle has only 25 cattle. Because buyers usually demand large numbers of uniform animals, the presence of so many farmers producing cattle of diverse quality poses a marketing problem for the state.

Programs being developed by the Kentucky Farm Bureau aim to rectify these marketing problems. They include an educational beef management course and a program to monitor the movement of feeder cattle through marketing channels, combining small lots to create larger herds for the feed lots. If successful, the Farm Bureau believes these two programs could have a significant impact on the future viability of Kentucky's number two farm commodity. Importantly, these efforts would be dramatically enhanced by the full implementation of the KY I-Way, which would provide both a vehicle for educating farmers in their communities and ready access to comprehensive information on cattle markets. Clearly, cooperative efforts, marshaled by such organizations as the Farm Bureau and the Community Farm Alliance, working in conjunction with the state Department of Agriculture, offer state farmers the opportunity to build on a solid foundation. These important efforts should also involve planning to tap the enormous resources technology holds for expanding the knowledge base of farmers, creating and tapping into new markets, and discovering alternative methods and product opportunities.

The third major agricultural enterprise in the state of Kentucky is horse breeding or, more specifically, Thoroughbred breeding. While concentrated in the Bluegrass region, the Thoroughbred industry has become part of Kentucky's national and international identity and an important magnet for visitors, as well as those engaged in the business. As Dr. Freshwater notes, Kentucky is the only state in the nation in which horse breeding is a major source of farm receipts. In 1992, for example, Thoroughbred breeding accounted for 13 percent of Kentucky's agriculture receipts. A 1991 study conducted by the University of Kentucky Center for Business and Economic Research found that the equine industry provides a \$5 billion annual stimulus to the economy of Kentucky, accounts for 7.5 percent of the gross state product, creates 80,000 jobs and generates an annual estimated payroll of \$1.3 billion, 5 percent of the state's overall payroll. The study also found that, contrary to perceptions, the horse indus-

try is pervasive throughout the state. Horse farms are present in 108 of Kentucky's 120 counties, and they represent a total investment estimated to be between \$4 and \$5 billion.

Kentucky's other major commodities, dairy products, corn, soybeans, hogs and horticulture, hold enormous potential for product diversification, on which the future of farming in Kentucky may hinge. According to the U.S. Department of Agriculture, the country's leading exports in 1992 were feed grains, soybeans, wheat, live animals and meat. Kentucky's agriculture base can be strengthened over the long-term by programs designed to encourage and enable production, as well as the use and consumption, of more of these commodities. Strategically, such diversification could be expected to buffer the impact of the predicted decline of tobacco.

Beyond the basic agricultural commodities that dominate the national and global marketplaces, specialty or "niche" agricultural products are expected to become increasingly prevalent offerings. While certain staples will continue to form the foundation of agricultural production, the growing internationalization of the American palate is expected to boost demand for ethnic cuisine and the vast array of ingredients it demands. In the coming years, Roper pollsters predict a "fragmentation" of the food market in response to heightened interest in the cuisine of diverse cultures. As a consequence, today's rare item may become tomorrow's staple. For example, Roper pollsters note, Americans purchased more salsa last year than ketchup. With the popularization of Mexican and other ethnic cuisine comes an immense and rapidly evolving market for agricultural products, many of which can be successfully grown and marketed by Kentucky farmers and organizations representing their interests.

The growing internationalization of the American palate is expected to boost demand for ethnic cuisine and the vast array of ingredients it demands.

Some small Kentucky farms are looking inward for discrete markets for items such as organic produce, range-fed animals, and specialty items, for which demand is growing. Much of the success of such ventures depends on the anticipation of demand, successful promotion, the development of markets and transportation to them. The future potential of Kentucky's agricultural base will depend on the creativity of its farmers and the organizations which represent them, on their knowledge of trends and their timely response to new and unfolding markets. Agriculture, like manufacturing, will be challenged to change, to become more flexible and more responsive to customer demand.

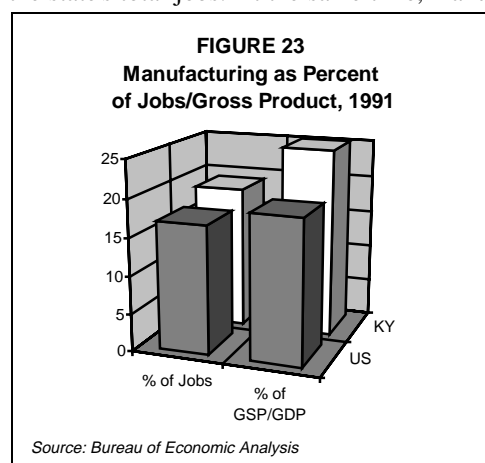
If sustainability is to be advanced as an overriding goal for Kentucky agriculture, a value-added component of the state's agricultural base could also lend strength to the state's farm economy. By creating internal markets for Kentucky agricultural products, some of the uncertainty that attends diversification can be mediated. By advancing the goals outlined in *Ag. PROJECT 2000*, Kentucky can develop a sustainable, interdependent internal marketplace of sufficient scope to strengthen prospects for farmers, small and large. Ultimately, however, state-of-the-art farming methods and practices and access to markets, national and international, both of which can be dramatically enhanced by computer literacy and broad access to the proposed KY I-Way, will determine the extent of the role farming will play in Kentucky's future.

NEW MANUFACTURING MUSCLE

*Predicted to decline nationally in coming years,
manufacturing nevertheless is making gains in Kentucky's economy.
Some observers believe they bode well for the future.*

Globalization and technological advancement have affected manufacturing more than any other segment of the American economy. Advances in industrial technology, communications and transportation now enable — even require — firms to do business in an international marketplace. As a result, the national and international geography of manufacturing has changed dramatically in the last 25 years. Kentucky has reaped some benefits from these changes, evidenced by the burgeoning automobile manufacturing sector in the state, as our state clearly possesses many qualities which are very attractive to manufacturing firms. If Kentucky is to take full advantage of these qualities and maintain a strong manufacturing base, however, it must anticipate the future needs of manufacturers and build upon changes which have already benefited the state.

The importance of manufacturing is evident in employment and gross product figures. In 1991 the state's manufacturing sector employed more than 271,000 workers, or 19 percent of the state's total jobs. At the same time, manufacturing produced more than 24.6 percent of the



gross state product. Nationally, manufacturing employed 16.9 percent of the labor force and produced 18.7 percent of the gross national product. The Bureau of Economic Analysis predicts that manufacturing employment in Kentucky will remain relatively stable over the next 25 years, declining by only about 5,000 jobs by 2020.

Subsequently, however, the BEA predicts a sharp drop in manufacturing employment (18,400 jobs between 2020 and 2040), a trend that mirrors national predictions of an overall decline in manufacturing employment. Some observers predict a far faster drop in employment levels. Technological advances combined with the institutionalization of leaner organizational structures and less labor inten-

sive systems are expected to dramatically thin manufacturing workforces in the years to come. Not only are these trends expected to reduce the number of manufacturing jobs, they are also expected to influence the composition of jobs. Manufacturing jobs, it is believed, will be increasingly dominated by educated, highly-skilled workers.

Today, Kentucky produces a diverse range of manufacturing products, and no single sector dominates in terms of production. Among the larger manufacturing classifications in Kentucky are apparel and related products, industrial machinery and equipment, and transportation equipment. Apparel and related products employs the largest percentage of manufacturing production workers, about 16 percent in 1991, but the vast majority of these jobs are low-skill, with limited use of advanced technology and equipment. Jobs in this sector are thought to be quite vulnerable to movement overseas, though prominent Kentucky employers have suggested this is an unlikely outcome. Industrial machinery and equipment manufacturers employ about 9 percent of all manufacturing production workers in the state and vary in their use of

advanced technologies. Some use state-of-the-art equipment and a highly-trained workforce, and others use less advanced methods.

Transportation equipment manufacturers, who employ about 9 percent of all manufacturing workers, are at the opposite end of the spectrum from the apparel industry. These companies use the most advanced manufacturing technologies, employ highly-qualified people, and produce an excellent product. The expansion of automobile manufacturing in the state has proven to be one of the most exciting recent developments for Kentucky's economy. The automobile industry has become one of the state's leading industries, largely because of geography. Kentucky is located in the heart of what is known as "Auto Alley," a region which is centered on two interstate highways, I-65 and I-75, and includes Tennessee, Indiana, Ohio, Michigan and Illinois. During the 1980s, almost every Japanese auto assembly plant built in the United States was located in one of the six states which comprise Auto Alley. The joint Toyota-GM plant in California was the only exception.

With the assembly plants have come Japanese automobile supplier firms, which are heavily concentrated in Indiana, Ohio, Tennessee and Kentucky. As of December 1992, 56 parts and materials suppliers — Japanese and others — had established plants in Kentucky since Toyota announced its decision to locate in Kentucky seven years earlier. Employment in the state's supplier firms is estimated to be in excess of 10,000 workers (Center for Business and Economic Research [2]). Toyota itself has expanded its assembly plant to a capacity of 400,000 vehicles per year and has expanded its powertrain plant to a capacity of 500,000 engines per year, including V-6 capability. In September 1994, the first of a new model, the Avalon, rolled off the assembly line in Georgetown. In response, employment at the plant had grown to 5,500 and is expected to reach 6,000 in 1995.

Despite the rapid growth of the service industry, manufacturing remains the dominant industry in communities outside large urban areas. Kentucky's manufacturing strength will be critically important for future economic prosperity, especially in rural areas. Many firms, however, are ill-prepared to manage the trends influencing the future of manufacturing. Of Kentucky's approximately 4,100 manufacturing firms, 98 percent are small, meaning they employ fewer than 500 workers. A Kentucky Science and Technology Council survey of state firms found that a majority of small manufacturers in the state use little technology or automation. Many of the leaders of these firms believe manufacturing processes should be given higher priority, but they report a lack of skilled employees to implement and use state-of-the-art processes. Underscoring the vulnerability of smaller firms, a 1993 study by the National Bureau of Economic Research found that jobs created by larger firms tend to have longer survival rates and offer higher pay to a more highly-skilled workforce ("Labor Letter").

TABLE 1 Kentucky Manufactures Percentage Production Workers and Wages, 1991		
Manufactures	% Production Workers	% Wages
Food and Kindred Products	6%	5%
Apparel and Related Products	16%	8%
Lumber and Wood Products	6%	4%
Furniture and Fixtures	2%	2%
Paper and Allied Products	3%	4%
Printing and Publishing	5%	6%
Chemicals and Allied Products	4%	7%
Rubber and Plastic Products	6%	6%
Leather and Leather Products	<1%	<1%
Stone, Clay and Glass Products	3%	3%
Primary Metal Industries	6%	8%
Fabricated Metal Products	7%	7%
Industrial Machinery and Equipment	9%	10%
Electric Equipment	9%	10%
Transportation Equipment	9%	12%
Instruments and Related Products	<1%	<1%
Miscellaneous Manufacturing	2%	2%
Source: KY Workforce Development Cabinet		
Note: Data unavailable for tobacco manufacture, textile mill products and petroleum and coal products.		

The Context of Change

Capital availability is another important concern for Kentucky manufacturers. The Center for Robotics and Manufacturing Systems at the University of Kentucky reports that private venture capital is nearly non-existent in the state. Small business investment company financing per worker is quite low compared to neighboring states, with Tennessee spending \$20 per worker for every \$1 Kentucky spends. Small firms often lack the capital to become suppliers to world-class manufacturers such as Ford, Toyota or Ashland Oil, as they are constrained in their abilities to modernize operations through investment in technology and intellectual capital.

Another liability associated with Kentucky's manufacturing base may be the significant presence of branch plants in the state, many of which were attracted by the ready availability of cheap labor in rural communities. Essentially, decisions these firms make are focused on the profitability and well-being of a corporate entity distant from the Commonwealth. Many of these plants offer lower-than-average manufacturing wages, and some are extremely vulnerable to market forces. They are thought to be likely candidates for movement overseas under NAFTA, as the attraction of even cheaper labor heightens. Particularly vulnerable may be poultry and meat-processing plants and textiles and apparel industry operations, the latter of which is Kentucky's largest manufacturing employer (Glasmeier et al.). Conversely, NAFTA may produce expanded opportunity for Kentucky industries and their employees as new markets open.

By utilizing strategies that maximize the strengths of firms, Kentucky can mediate some of the potential liabilities its more vulnerable small firms face. For example, the state can become an important catalyst in the development of networks of manufacturers, which are being advanced in other states. They offer small manufacturers the opportunity to gain access to valuable and often costly ideas and information. Through such networks, firms can pool resources for workforce training and market development and build shared, mutually beneficial strategies for raising the value of the product they make. Kentucky's apparel industry, for example, could gain significant strength through such networks, raising the skill level of its employees and, in turn, the value of its products.

Kentucky is not without the means to become a strong manufacturing state and prosper in the new global economy. With two-thirds of the nation's population living within 500 miles of the state, and interstates connecting the Great Lakes and the Midwest with the Gulf of Mexico, the Atlantic Ocean and the Sunbelt, Kentucky is blessed by geography. Kentucky also enjoys abundant natural resources which could provide a strong comparative advantage in the global economy. The state's expanding automobile manufacturing sector is also poised to benefit from part of the pent-up American demand for cars, which now average eight years in age (Fehr). The surging automobile industry has become an integral part of the state economy in less than a decade and has thrived thus far, demonstrating to other manufacturers just how viable a location Kentucky is.

You see the purple hills far in the
west
— Hills lined with pine and gum and
black Oak tree

Jesse Stuart
"This Land is Mine"
1934

A SUSTAINABLE OPTION

*The pre-eminence of Kentucky
hardwoods must be matched
with a second tier of wood
products industries if this
abundant resource is to return
significant benefits.*

Of all the natural resources found in Kentucky, none is more under-utilized yet potentially more lucrative than its forests. As Albert Spencer, Director of the Center for Economic Development at Eastern Kentucky University, observes, "...wood has always been important to the economy of Kentucky, but in a state where mining and agriculture have held sway for most of the state's history, the potential of forest resources has never been fully realized." Instead, Kentucky, the nation's fourth largest producer of hardwood lumber, reaps only a fraction of the value of its forest products because of the virtual absence of a secondary, value-added manufacturing component within the boundaries of the Commonwealth.

At present, approximately 70 to 75 percent of the 700 million board feet of grade lumber cut here annually is shipped beyond our borders in an unprocessed state. As a consequence, neighboring states have benefited from Kentucky's abundant resources and its inability to develop a strong and vibrant secondary wood industry. As Spencer notes, Kentucky's secondary wood industry is relatively small compared to that in neighboring states. Tennessee, for example, has about the same acreage of forest land as Kentucky, but its sales of forest products amount to about \$3 billion per year, compared to the \$1 billion Kentucky averages. Indiana, which has less than one-third the forest land Kentucky possesses, produces more than \$4 billion in forest products each year (Spencer).

As illustrated, when compared with surrounding states, Kentucky ranks behind only Tennessee in its annual production of lumber, according to the U.S. Forest Service. In contrast, Kentucky's share of forest industry establishments, according to the U.S. Census Bureau, is the smallest among surrounding states. Tennessee and Virginia, which have harvests comparable to Kentucky, enjoy three to seven times larger shares of U.S. forest product establishments.

Development of the enormous potential a secondary wood industry holds for Kentucky's long-term economic prospects will, however, require investment in expertise and entrepreneurs, as well as a reliable future source of high quality hardwood. A study conducted by the U.S. Department of Commerce

found that the forest industry in Kentucky has five major deficiencies, the most significant of which is the relative absence of skilled management personnel. The study also concluded that eastern Kentucky's abundant but unskilled labor force posed problems for the long-term development potential of the industry. Skilled graduates of vocational schools have been forced to leave the region to find work. Also cited as deficiencies in the federal study were transportation and communications infrastructures. Finally, the study found that the harvesting of the state's primary wood industry (logging) was inefficient.

State	Lumber (millions of board feet)	Establishments (percent of U.S. total)	Employees (percent of U.S. total)
KY	740	.3%	.3%
IL	87	1.1%	.5%
IN	500	.9%	.3%
MO	467	.6%	.3%
OH	540	.8%	.3%
TN	794	1.1%	1.0%
VA	702	2.2%	2.2%
WV	607	.8%	1.0%

Source: U.S. Forest Service; U.S. Census Bureau

The Context of Change

According to a number of state forestry experts, Kentucky's current timber harvest is clearly sustainable if properly managed. While western Kentucky harvests are close to the replacement margin at the present time, new growth is 2.6 times the harvest in eastern Kentucky. The long-term value of the state's forests and the potential of a secondary wood industry, however, is being threatened by the practice of "high grading," removing only the best quality trees without replacing them. It is estimated that as much as two-thirds of new growth in the state is in lower grades of lumber. Effective forest management is made more difficult in Kentucky by the diversity of private landowners who hold 91 percent of the state's forests and the absence of what Professor Robert N. Muller of the University of Kentucky's Forestry Department calls an "ethic of stewardship." Importantly, as Dr. Dedic notes, stewardship also involves the cultivation of a renewable philosophy among corporate producers who harvest Kentucky timber. Clearly, if the present trend of new growth in lower grades of lumber is to be reversed, stewardship must be improved through education and training, a package of incentives and disincentives and even enforcement.

Over the years an exhaustive list of recommendations has been submitted by a host of individuals on how best to capitalize on Kentucky's abundant forests. Dr. Spencer offers a four-part formula for meeting this challenge:

- Shape existing industry and industrial recruitment strategies with the secondary wood industry as a key long-term strategy, placing greater emphasis on existing companies;
- Utilize existing institutions, state agencies, state universities, and supporting organizations to assist development and deliver services to the wood industry;
- Concentrate resources on the development of human capital, rather than bricks and mortar (One capable, creative individual, asserts Dr. Spencer, is a far more cost effective investment than buildings or equipment.); and,
- Maintain a program of continuous support.

Coordinated at the state level, this general approach to filling the gap in Kentucky's wood products industry is but one of several feasible plans submitted by researchers, state universities and federal agencies over the years. Importantly, the Kentucky General Assembly has moved to bring new attention and leadership to the development of a wood products industry through the creation of a Kentucky Wood Products Competitiveness Corporation and the provision of much-needed support for training and network development. Additionally, a Forest Products Council attached to the Cabinet for Economic Development has been created to cultivate the development of a viable primary and secondary wood industry.

PLAYING HOST

*While tourism is viewed as a viable, sustainable option
for the development of rural communities,
it has not proven to be an antidote to poverty.*

As growth in the service and retail industries continues to accelerate, capturing more of the economic benefits of travel and tourism has become a development focus for many states. An ill-defined “industry,” tourism involves a cluster of services, principally the hotel, food and retail sectors, which serve those who travel for business or pleasure. While tourism has been highly touted as a development strategy and garners increasing shares of state revenue for its promotion, the seasonal and marginal quality of the jobs it creates do not often produce returns in the lives of those who work in this industry. Indeed, prosperity continues to elude many workers in the most successful of tourism developments.

The attraction tourism continues to hold for development is magnified, however, by its generally sustainable nature and the income potential it holds for under-developed rural areas where poverty persists. The industry also can serve as a complement to inadequate development in other areas, such as agriculture or manufacturing. In recognition of its potential in these areas, tourism development serves as a cornerstone in the strategic economic development plan formulated by Kentucky’s Cabinet for Economic Development in 1994.

The potential of tourism in Kentucky is evident from its already considerable economic impact. According to the Department of Travel Development, total tourism related spending between 1980 and 1992 grew from \$1.9 billion to \$5.7 billion. During the same time period, employment supported by tourism spending climbed from fewer than 100,000 to 154,000 jobs. These and other trends suggest continued growth in the industry.

As America grays, the popularity of Kentucky’s store of historical sites should rise accordingly. Older tourists have been found to enjoy touring historic sites and Kentucky ranks fourth in the nation in the number of sites listed on the National Register of Historic Places (Luallen). Additionally, according to Rick Bates, Tourism Director at the University of Kentucky, the advent of the shorter vacation presents significant opportunity for Kentucky. As two wage earner families juggle increasingly complicated schedules, the trend is toward more short trips or long weekends to locations a short distance from home. Kentucky’s central location, according to Bates, places it within a day’s drive of half of the population of the United States.

As America grays, the
popularity of Kentucky’s
store of historical sites
should rise.

Unfortunately, sufficient evidence exists to suggest that tourism is not an antidote to poverty and that it often contributes to the degradation of the very cultural and environmental resources that originally attracted tourists. Typically, the tourism industry creates predominantly low-skill, low-wage, seasonal jobs that are attended by low per capita incomes, persistent poverty, and cyclical unemployment and dependence upon social programs (Smith). Within the major employment sectors of the industry, hotel/motel, restaurant and retail, workers often do not enjoy the same protections as their counterparts in other industries. In Kentucky, for example, employees in these sectors are exempt from wage and hour laws governing the use of overtime.

The Context of Change

In the absence of thoughtful, comprehensive planning, the more successful tourism development becomes, the more acute the degradation that attends it may be. However, strategies that strengthen local ownership, require developers to make significant initial and ongoing investment in human and social infrastructure (i.e., day care, training and education, and local government), and raise the quality and, hence, the cost and the benefits of the tourism product may offer viable alternatives. The strong historical component of Kentucky's tourism product may also serve to raise the quality of development and, hence, jobs associated with it. Ample opportunity exists to utilize technology and high skills workers to illuminate historical events through multi-media presentations, videos and even interactive vehicles. Planning for the future of historic sites must also address critically important questions of accessibility for older travelers, as well as marketing to targeted audiences.

Sufficient evidence exists to suggest that tourism is not an antidote to poverty and that it often contributes to the degradation of the very resources that originally attracted tourists.

Critical to the success of current and future development is local ownership, as proprietors of tourism businesses and as architects of future development. Strong citizen participation in all phases of development, from planning and zoning requirements designed to preserve scenic qualities and natural resources to taxation strategies de-

signed to ensure an equitable return to local communities, is essential to long-term success. Strategies for expanding local ownership and integrating local industries, such as Kentucky's craft industry, are also critical to expanding benefits to Kentuckians.

A 1994 study by the Center for Business and Economic Research at the University of Kentucky estimated actual sales of Kentucky crafts at \$24.2 million a year and the industry's overall economic impact at \$52.5 million for 1993. Tourism offers the opportunity to broadly expand and strengthen markets for this growing industry. Likewise, the potential for development of complementary wood products industries offers many communities the opportunity to create viable year-round economies that tourism alone cannot sustain. Successful development strategies should also maximize opportunities for Kentuckians to own and operate businesses through small business assistance programs and venture capital funds.

Utilizing such an approach, Kentucky may be able to mediate high rates of poverty and unemployment in its rural communities through tourism development. Glenn Weaver, author of *Tourism Development: A Guide for Rural Communities*, recommends a grassroots approach to development, one that builds on the strengths of local communities, as an alternative to the traditional approach of mammoth outside investment in or development of resorts and attractions that may or may not have a relationship to place or people. Weaver believes tourism is a viable development option because its implementation relies on an area's cultural, historic, ethnic, geographic and natural uniqueness. The success a region or community enjoys in developing a tourism economy is directly tied to its ability to preserve and elevate these qualities, rather than dilute or degrade them. Utilizing such an approach, Kentucky has significant opportunity to attract visitors not only to its compelling beauty, but to its rich social and cultural history and the warmth and hospitality of its people.

The almost certain development of areas surrounding the Big South Fork Recreational Area in southeastern Kentucky presents a challenge to local and state policymakers who have a unique opportunity to cultivate an industry that will provide maximum benefit to the people of southeastern Kentucky. By following a model such as that employed by the Kentucky Science and Technology Council in the establishment of rural telecommuting centers, the state can provide valuable technical assistance to local citizens and communities, as they shape a

vision and a plan for the realization of community-based goals. Importantly, the Tourism Cabinet has received an Economic Development Administration grant to shape a comprehensive plan for the development of a sustainable tourism industry in Kentucky. Through such a plan, carefully shaped by direct citizen involvement in affected communities, the degradation that too often attends unplanned development could be avoided and opportunities for greater prosperity expanded.

ENTREPRENEURIAL OPPORTUNITY

Small enterprises are expected to be the engine of our future economy, fueled by expertise, capital and a broad-based commitment to their development.

The importance of small enterprises to the economy as a whole cannot be overestimated. From June 1992 to June 1993, employment in the small-business sector of the economy accounted for nearly all the employment increase in the national economy. In fact, small business

TABLE 3 Kentucky's National Ranking in Small Business Economic Indicators (Out of 51)	
Proprietorship	10
Total earned income	2
Exports	34
New business incorporation	28
Business formations	14
Business bankruptcies	47
Business failures	38
Business termination	18
Number of women-owned businesses	36
Number of black-owned businesses	24
Number of Hispanic-owned businesses	35
Number of businesses owned by other minorities	25
Source: Small Business Administration	

dominated all sectors, creating 1.1 million new jobs out of a total 1.5 million for the entire country (Federhofer). Its importance to Kentucky is equally significant, as 97 percent of the state's 66,604 businesses are classified as small, having fewer than 500 employees.

National growth in new and successor firms is believed to be indicative of a longer term increase in business formation. The rate of new business formations in Kentucky from 1982 to 1993, however, has been below that of the region and the nation. Nevertheless, as illustrated, Kentucky continues to rank high in a number of performance areas, including proprietorship, earned

income and business formations. While it ranks fairly high (18th) in terms of business terminations, these national data suggest that failures and bankruptcies are less problematic for Kentucky small businesses. Weaknesses in the state's performance, however, are evident in the need for Kentucky small businesses to expand exports and increase the number of women-owned small businesses. The latter, Dr. Dedic notes, may be a reflection of under-developed business sectors in which female ownership is typically much higher.

As previously discussed, much of the state's future success in cultivating entrepreneurial opportunities in a range of industries will hinge on the availability of expertise, managerial and technical, to assist the development of new enterprises and to skillfully manage their progress. Additionally, inadequate capital may prove to be a problem for start-up companies in Kentucky, according to William Federhofer, District Director of the Small Business Administration's office in Louisville. Federhofer notes that few venture capital companies are located in Kentucky, forcing would-be entrepreneurs to go out of state in search of development capi-

The Context of Change

tal. Instead, most debt capital in the state is supplied by commercial banks that are less willing to finance risk ventures or business start-ups.

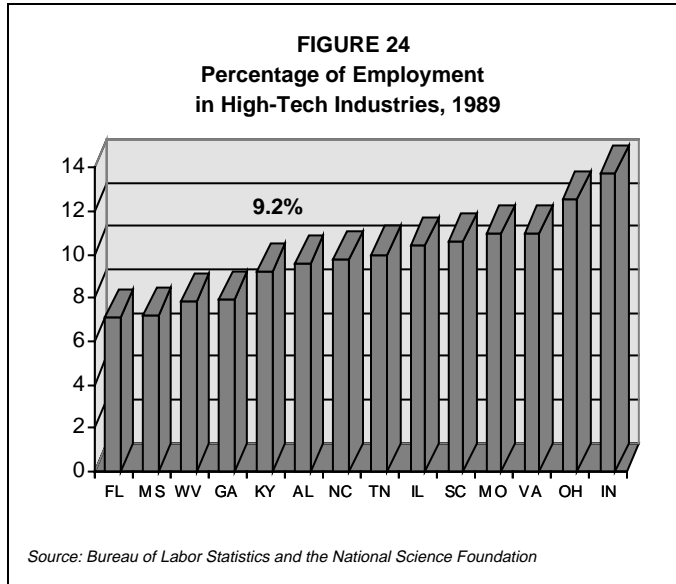
Also inhibiting development of new enterprises in the state is the dominance of its industrial sector. The service sector, Federhofer notes, is under represented in Kentucky, a factor that could inhibit long-term employment growth, as these high-growth employment areas are crowded out by more traditional but declining industries. Importantly, the health sector, which Kentucky has an advanced infrastructure in place to support, is predicted, along with business services, to enjoy the largest expansions. Again, the importance of cultivating expertise in this area cannot be overstated as employment growth is predicted to be brisk in a number of sectors of the health care industry.

TECHNOLOGY APPLIED

While human resources will be critical to Kentucky's ability to use and apply technology to create opportunities, existent and expanding infrastructure may offer points of leverage.

As we look to the future from our predominantly rural, disproportionately poor and under-educated state, what promise, we ask, does the technological revolution hold for Kentucky? Most agree it is immense — if we develop the human capital to seize it. And capturing a larger share of technologically developed industries will help Kentucky reach and perhaps exceed an important benchmark — parity with the national average for per capita income. Industries that are more technologically developed have been found to offer higher than average pay per employee (Hadlock et al.), but they also require commensurably high skills. Consequently, substantial commitment to and investment in the education and training of our present and future workforce is key.

The imperative of capturing a larger share of employment in high-technology industries grows in view of anticipated slow job growth. Concentrated largely in the manufacturing sector, high-technology industries are expected to experience gains in productivity that may suppress job growth (Hadlock et al.). In the future, some observers predict that the workforce will be dominated by a core of highly skilled, technologically adept workers, around whom other, less skilled workers will cluster. As a consequence, industries with a strong technological component will be likely magnets for the nation's most highly skilled workers.



In 1991, southern states enjoyed what a study by the Bureau of Labor Statistics and the National Science Foundation estimated as the largest regional share of jobs in high-technology industries (28.2 percent). While Kentucky has only 1 percent of the nation's jobs in high-technology industries, an estimated 9.2 percent of the state's employment is in industries with a significant research and development (R&D) component, one measure of technological proficiency. As illustrated, Kentucky fares relatively well in this measure among its rural,

historically poor southern state counterparts, due in part to the concentration of R&D employment in the state's expanding automobile industry, as well as such industries as computer and office equipment, plastics and chemicals. Among surrounding states, however, Kentucky's share of high-technology employment exceeds only that in West Virginia (Hadlock et al.).

Points of Opportunity. While cautioning that the rate of change ahead offers little certainty and demands that we be prepared to seize new opportunities — wherever they arise, Dick Dedic of the University of Kentucky Technology Applications Center, Kris Kimel of the Kentucky Science and Technology Center and others cite specific foundations that may prove advantageous for Kentucky. Development of the potential that lies in these strengths will depend on statewide leaders who champion its evolution and by scientific vision, the capital to realize it, and the human resources to advance it. Among the areas which may hold potential are:

Communications. Increasingly complex and diverse forms of information exchange underscore the need for Kentucky to expand its communications capabilities for broadband information to all segments of its population, a goal the planned KY I-Way would achieve. Possible applications for commerce include cooperative and joint ventures to reduce the size, increase the speed and “more fully integrate the human-machine potential of our existing communications network (Dedic).” The manufacture of such communications tools, Dr. Dedic recommends, should be supported by centers of research excellence that facilitate the discovery and the transfer of new products.

Medical Technology. There are possibilities in the area of nanotechnology, medical devices that can replace human parts or functions. Examples include minuscule devices that could “cruise the bloodstream searching for fat deposits” (Petersen). This avenue of technology would build on Kentucky's existent centers of medical excellence, its micro-machine foundation, and its strategic location in proximity to other centers of excellence. Co-existent with the development of these devices would be the development of the technical implantation skills necessary to facilitate their development. Others, however, suggest that far stronger bases already exist, making it less likely that Kentucky enterprises will be able to seize opportunity in this area.

The Context of Change

Biotechnology. With the potential involvement of Kentucky's academic and industrial institutions, recombinant DNA techniques (genetic engineering or gene splicing) could present opportunity, particularly in the areas of agricultural feed development and crop immunization, where Kentucky now has a significant investment in scientific and technical expertise. "... [T]he industry has the potential to profoundly impact the market within the next 20 years," observes Dr. Dedic. Additionally, the potential for developing both products and the process of administering new pharmaceuticals is "one of the best opportunities for growth in Kentucky's technological future."

Advanced Materials. A broad and active area of technology development, advanced materials involves the development of lighter, stronger and more durable materials for use in the construction of future technology products, as well as myriad other applications. The expanding automobile industry in Kentucky, as well as the emerging wood products industry, are major change agents in the field, one that could become a significant economic factor in the years to come. "While much of our technology is now imported from other states or other countries and simply applied to existing industry, ... Kentucky industry is capable of developing this technical know-how, and the research community is beginning to demonstrate more intense interest in this emerging field," observes Dr. Dedic. "Significant to note is the recent advent of new wood-forming technologies which will be used to create valuable dimensional lumber from previously under-utilized Kentucky hardwoods. This represents a significant advancement in Kentucky's efforts to develop new materials which will capitalize on the natural resources available within this state. It also represents a noteworthy advance in the technological orientation of the wood processing industry that should lead to other important advances in natural materials products ..."

Environmental Remediation. "Perhaps no sector of emerging technologies holds as much promise for Kentucky as does the arena of environmental remediation. As a state and as industry within the state, we have done much to exploit the natural resources with which we were endowed. Unfortunately, there are many instances in which exploitation turned into abuse and neglect. We have much to recover and many opportunities for remediation in Kentucky. Four of the top ten companies, by number, who filed for environmental remediation patents in 1992 had operational facilities in Kentucky."

"The potential technologies for development in Kentucky include sulfur dioxide emission control, oil waste water or acid mine drainage pollution remediation, and biodegradation of existing organic hazards. Unfortunately, this entire area is one in which the scientific and technical issues are more often than not victims to economic and political considerations. Research funding for activities that could lead to breakthrough advances in all areas of environmental remediation has been highly publicized but minimally provided. Kentucky has many initiatives and much to accomplish in this technological quarter (Dedic)."

CHASING THE DREAM

Tremendous irony attends the era of change in which we live and work. While we are making previously unimagined gains in technology, product development and the management of human resources, the gap between those who have and those who do not has not narrowed. The middle-class lifestyle is becoming increasingly remote for a growing portion of citizens, and, recent research suggests, the economic consequences of this deepening income inequality may reach well beyond the expanding ranks of the working poor and the disenfranchised. Indeed, inequality may affect everyone by inhibiting the very growth of our economy, as well as the broad prosperity that growth enables.

Our notion of the American Dream emerged during the post-World War II years, a by-product of sustained economic expansion and growth. As Wallace Peterson details in his book, *Silent Depression*, the expectations of the American Dream included a dependable job at good, steadily improving wages; fringe benefits that permit time for leisure pursuits and assure health care and continued comfort in retirement; home ownership; consumer buying power; travel and leisure time; and the financial capability to continue the legacy of prosperity, to help ensure an even better future for one's children. Today, merely reciting the facets of the American Dream seems an indulgence, an exercise in excess. None of our previous expectations are certainties any longer.

For many workers, the American Dream has become more and more elusive and the pursuit of it a frantic chase. The employer-employee contract has become more tenuous, as firms meet global competition with fewer, less costly employees, many of whom work part-time or on a contingency basis. Widely adopted "reengineering" initiatives have heightened employment instability and worker mobility. Wages have stagnated and, at the same time, employee benefit packages that once enabled workers and their families to plan for the future or the unforeseen are shrinking or disappearing. Many Americans work but remain poor.

Pressed to close the gaps created by these changes, families are experiencing an increasing poverty of time and money that is affecting both their viability and stability, as well as their participation in the economic life of this state and nation. In Kentucky, where a disproportionate number of citizens are poor, the dream of prosperity has become distant and remote. Many experience it only vicariously, through the electronic twilight of television that so brightly illuminates the economic gulf that has widened before them.

Recapturing the implied social contract known as the American Dream and the hope attendant to it is expected to remain a vexing political and social problem for years to come, one that is perhaps unequaled in our history. The ways in which we redefine or recast the dream will, in no small part, determine our shared future.

A TENUOUS NEW EMPLOYER-EMPLOYEE CONTRACT

*The employer-employee contract is being renegotiated,
and, increasingly, workers are the losers.*

The contract that once bound employer and employee implied lifetime security and, in most instances, the means to a range of benefits that enabled employees and their families to prosper, to plan for old age and to manage the unforeseen. Today, the circumstances of employment are far more tenuous. More workers are moving or being pushed from job to job, but many are not moving ahead. They are falling farther and farther behind, into more marginal employment circumstances. The notion of lifetime employment is now widely viewed as an anachronism, and hard work is no longer an assurance of anything.

Instead, the present wage floor established by the federal minimum wage barely enables an individual to escape from poverty. When adjusted for inflation, the minimum wage was 30 percent lower in 1993 than in 1968. Families cannot hope to survive on the wages of a single minimum-wage worker without government subsidies. The once widely honored concept of a "family wage" sufficient to enable a single wage earner to support a family has passed into history. With it, the dreams of even a modest middle class life have dissolved for thousands of working Kentuckians and their families.

Many workers lost economic ground as global competition for cheap labor reduced the nation's proportional share of jobs in the historically high-wage manufacturing industry. Nationally, technology has often been blamed for the elimination of jobs and the increased demand for more skilled, more educated, "gold collar" workers, but its impact remains uncertain. Many economists cite technology as a root cause for wage decline while others, like Lawrence Mishel of The Economic Policy Institute, view it as a force of less consequence than the "lowering of wages, benefits and working conditions of three-fourths of the workforce without a college degree . . ."

Corporate downsizing aimed at eliminating human "redundancies" created by technological and organizational changes continues unabated, adding to the uncertainty of workers at every level.² Some observers predict that downsizing, which has persisted in spite of research that suggests it is not achieving desired results (Rose),³ could eliminate as many as 25 million of the 90 million private sector jobs in the United States (Ehrbar). Labor, which has historically consumed a relatively low share of overall production costs in most industries,⁴ has become a principal focus of cost savings in the relentless drive for greater efficiency. From 1991 to December 1993, 9 million American workers were displaced, according to the Bureau of

² During the July 1993-June 1994 year, the American Management Association's annual member survey on downsizing found that the long-standing trend in corporate reductions of blue collar workforces had shifted to technical and managerial personnel, a trend that was also evident in its 1993 survey. BLS reported in September 1994 that managers, and professionals and technical, administrative and sales workers had lost the most jobs in the early 1990s.

³ Based on a survey of corporate executives, Arthur D. Little found that two-thirds of companies that had made labor force cuts had encountered problems. Similarly, a 1994 analysis of Economic Census data by the U.S. Census Bureau's Center for Economic Study found that 55 percent of productivity improvements had been realized by "downsizers," but production had declined from 41 percent of the sample's manufacturing output in 1977 to 37 percent in 1987. Conversely, the remaining 45 percent of productivity gains were made by industries that increased their labor forces. Unlike their downsized counterparts, however, the expanding companies nearly doubled their manufacturing output (Rose).

⁴ Based on U.S. Department of Commerce data on labor costs in manufacturing, Vanderbilt Professor Germain Boer concludes that labor has never been a major cost in manufacturing. Instead, Boer reports, its cost relative to sales has declined steadily since the Department of Commerce began collecting these data in 1849. While labor costs are quite high in selected industries, they are negligible in others.

Labor Statistics, half of whom had worked for their employer for three or more years. Effectively, many enterprises are meeting global competition by eliminating the workers who built them.

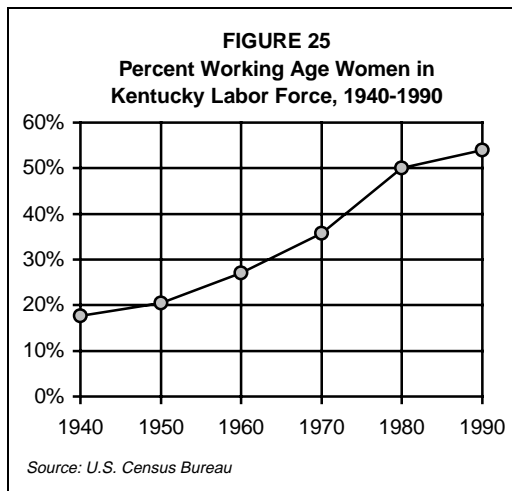
Rather than create new jobs and hire additional workers, some enterprises — indeed entire industries (Wells et al.) — are meeting demands with existent labor forces through overtime hours or through an expanded reliance on contingency employees, who routinely work less for lower wages and often without benefits. Large manufacturing concerns in Kentucky, like those around the nation, have relied extensively on overtime hours to meet production demands for years and, in the process, avoided many new hires (Hill).

It is widely believed that workers have quietly taken on more work at lower pay with barely a rumble of dissent because the overall economic impact of the losses they have suffered

has been muted by women's entry into the workforce and the advent of two paycheck families, and, to a lesser extent, by expanded overtime hours and multiple jobs. As illustrated, female labor force participation has grown steadily in Kentucky over the past 50 years, more than doubling since 1940. Today, the U.S. Census Bureau estimates that 54 percent of working age women in Kentucky are in the labor force. Only the sweeping entry of women into the labor force has enabled many families to maintain a standard of living that might otherwise have been lost.

Dissent has also been muted by the restructuring of industry and the elimination of millions of jobs nationally. Consequently, many workers are too uncertain

about what they have to vigorously pursue more. In this national climate, labor union membership has declined precipitously, from nearly 30 percent of the workforce in 1975 to an estimated 15.8 percent of the labor force today (Guzda).⁵ A range of observers believe the decline of unions has resulted in an imbalance of power that has cost American workers income growth, as well as the security that benefit packages once provided as a matter of routine.



⁵ In Kentucky, labor unions represent an uncertain portion of the workforce today. In 1989, however, union members were estimated to represent 21.5 percent of the overall workforce, a proportional share that then trailed the nation (23.8 percent) and surrounding states, with the exception of Tennessee and Virginia, but was substantially larger than the state's deep South, right-to-work neighbors.

The Context of Change

For many workers, particularly those who are not covered by a union contract, waning benefit provisions are adversely affecting preparations for the future. Among private industry employees, an estimated 42 percent of workers are not participants in an employer-sponsored retirement plan. While 89.1 percent of employees who are covered by a union contract have access to a pension plan, only 54.8 percent of those without a union contract are covered. In retail trade, one of the largest employment sectors in Kentucky, an estimated 60 percent of employees do not participate in an employer-sponsored pension plan. In the service sector, only half are participants (Wiatrowski).

TABLE 4 Percent of Employees Offered a Pension Plan by Industry and by Union Status	
INDUSTRY and UNION STATUS	
TOTAL	57.6
INDUSTRY:	
Goods-Producing	
Mining	70.2
Construction	35.4
Manufacturing, durable	75.1
Manufacturing, nondurable	72.5
Service-Producing	
Transportation and Public Utilities	71.4
Wholesale Trade	55.7
Retail Trade	39.7
Finance, Insurance, & Real Estate	72.9
Services	50.1
UNION STATUS:	
Covered by a Union Contract	89.1
Not Covered by a Union Contract	54.8
<i>Source: Monthly Labor Review</i>	

An uncertain number of workers who have been displaced or dispossessed now participate in what is believed to be an expanding informal or “underground” U.S. economy, estimated at \$15 billion annually.⁶ In Kentucky, its manifestation is evident in ubiquitous flea markets. An undetermined number of those who are not formally employed are so-called “discouraged workers,” whose numbers are not reflected in unemployment data. Some researchers believe the population of discouraged workers would actually double present unemployment rates.

Ironically, wrenching changes in the employer-employee contract are occurring at a time when employees and their families need flexibility and support from employers perhaps more than ever. Two wage earner households have become the norm and single heads of household confront significant problems with balancing family and work (Shellenbarger). Instead, outside a core of corporations that have made broad-based commitments to family support, employers are paring away or completely eliminating costly benefits that lend stability to the lives of families, in spite of the proven returns they offer.

Whether the employer-sponsored benefit model, which has prevailed in the United States for decades, persists or is replaced with a private- or public-sponsored benefit model will be central to coming political debates. At issue will be policies influencing such critical issues as health care, child care, retirement benefits, workplace safety and health, workers’ compensation, family leave, and a myriad of employee rights issues that are now bubbling just below the surface. Futurist Joseph Coates predicts the present imbalance between workers and employers will determine a succession of future presidential elections. The broad political impact of these issues will almost certainly be felt closer to home, as the looming consequences of the changing employer-employee contract edge closer to reality.

⁶ University of Wisconsin economist Edgar L. Feige bases this estimate on an examination of currency circulating outside the banking system. He estimates that between 4 and 6 percent of an identified \$310 billion circulate in the underground economy.

BEHIND THE BENCHMARKS

As economic circumstances worsen for many families, the impact is felt more sharply in Kentucky.

The changing circumstances of employment have brought uncertainty and economic vulnerability to a growing number of Kentucky families, for whom work offers a diminishing opportunity to prosper. Rising levels of contingency employment, the ascendance of low-wage industries, a reciprocal decline of high-wage industries, and the types and the mix of jobs industry is bringing to Kentucky are influencing wage levels and opportunities. While nonsupervisory workers in all industries in Kentucky earn 95 percent of the average hourly wage in the United States, the average annual income for all workers, according to the Workforce Development Cabinet, is only 85 percent of the national average. The Cabinet believes this disparity may be a product of the decisions of some firms to locate lower skilled production facilities in Kentucky with fewer supervisory workers.

In spite of rising employment levels, thousands of Kentuckians have experienced either

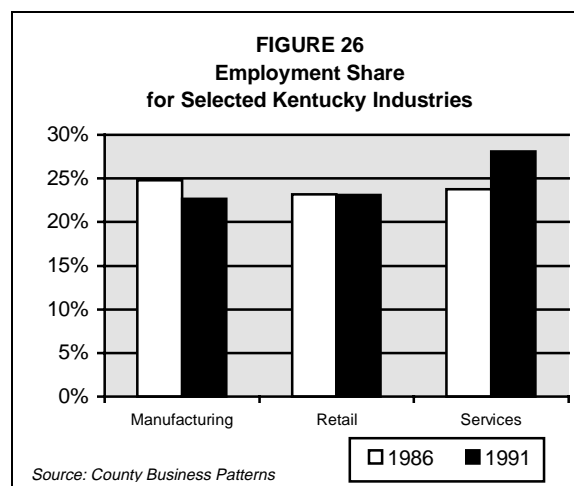
Year	Permanent Layoffs	Percent in Manufacturing	Temporary Layoff UI Claims	UI Claimants Who Exhausted Benefits
1988	9,598	54%	25,725	536
1989	14,851	71%	35,269	548
1990	9,284	66%	55,322	1,646
1991	10,479	63%	38,510	2,983

Source: KY Department of Employment Services

permanent or temporary layoffs in recent years, an indicator which illustrates both the vulnerability of many of the firms located in the state and the marginal quality of many of the jobs. In every year, *slack or seasonal work* was most often cited as the reason for mass layoffs included in surveys

conducted by the Department of Employment Services.⁷ As illustrated, an average of more than 11,000 jobs a year over the four-year period for which data are available were lost to permanent layoffs. In every year, employees of manufacturing establishments were disproportionately affected by permanent mass layoffs. Temporary layoffs that triggered UI claims also affected a significant number of Kentucky workers, an average of almost 40,000 employees a year, who exhausted UI benefits in growing numbers. During this four-year period, an average of almost 50,000 Kentuckians and their families were affected by *mass* layoffs every year.

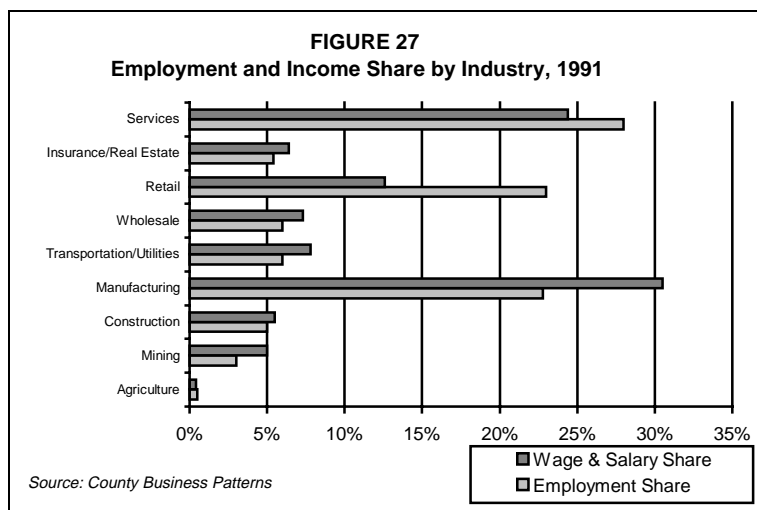
Structural shifts are also eroding the incomes of Kentucky families and, in turn, blocking their entry into the middle class. While overall employment increased from 1 million in



⁷ These data were reported on a voluntary basis and collected only in the event of 50 or more initial claims for Unemployment Insurance.

The Context of Change

1986 to 1.2 million in 1991, a changing industrial mix and the contributions of emerging industries to annual incomes are strongly influencing the economic well-being of Kentuckians. Kentucky's economy is now dominated by three principal industries, manufacturing, retail and services, which represent nearly 75 percent of employment in the state. Gradually, the historically high-wage manufacturing industry has lost employment share as the service and retail industries have made gains. While employment levels in retail trade grew steadily from 1986 to 1991, the industry's overall employment share did not change. The manufacturing share of employment, however, declined from 24.8 percent of private, non-farm employment (excluding government employment) in 1986 to 22.7 percent in 1991, as the service industry continued to absorb an increasing share of employment, up from 23.8 percent in 1986 to 28.1 percent in 1991.



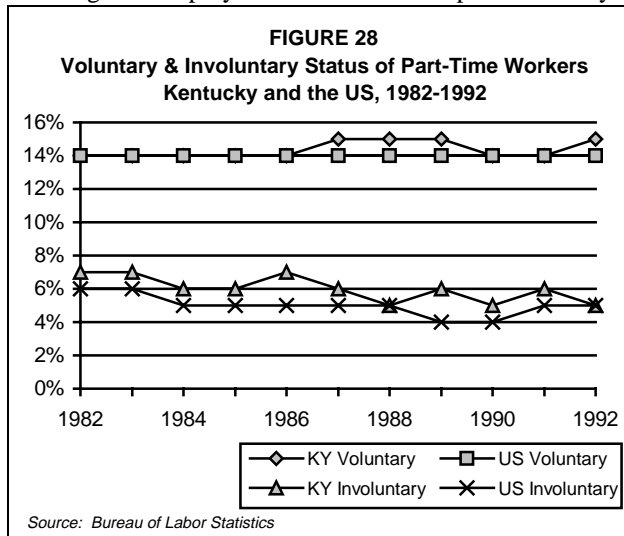
Wages and salaries, however, were not aligned with these shares. As illustrated, manufacturing provided 24 percent of employment in 1991 while it contributed 32 percent of income in wages and salaries. Within the manufacturing sector, however, significant variance exists. Some of the state's largest manufacturing employers

provide only a small share of manufacturing wages and salaries. The service and retail industries represent a significant share of employment that is not paralleled by contribution to income. The service industry, for example, provides 28.1 percent of employment but contributes somewhat less a share of income, 23.4 percent. The disparity between employment share and income is far more pronounced in the retail industry where 23.1 percent of state employment is based but only 12.6 percent of income is generated. Consequently, the shift from reliance on manufacturing jobs to service and retail jobs is having a dramatic impact on annual incomes and the economic well-being of Kentuckians.

As the Cabinet for Workforce Development reported in 1992, the employment mix of supervisory and non-supervisory workers is also exerting downward pressure on the average annual wage in a number of Kentucky industries. In the retail trade industry, for example, where an estimated 31 percent of employees worked part-time in 1990, the average hourly wage in Kentucky paralleled the national average, but annual income for all workers in the industry was only 85 percent of the national average. The disparity is believed to be a reflection of a minimal presence of managerial employees. A similar though not as pronounced disparity was evident in the manufacturing sector due to a high percentage of production workers, 74 percent versus 68 percent nationally. The diminished presence of supervisory or technical employees is a likely reflection of the unavailability of these more skilled workers in the state and the decision of firms not to introduce them. In the service industry, where employment has increased 72 percent since 1985, Kentuckians earn just 78 percent of the national average hourly wage and the national average annual income, a significant disparity. Wage trends in

these three prominent industrial sectors illustrate the consequences of the state's deficit in managerial, scientific and technical expertise. In a Catch-22 situation, the absence of an educated, highly skilled workforce in the state is narrowing the range of opportunity and limiting growth in high-wage occupations that could attract the brain trust needed to help overcome underlying problems.

The changing employee-employer contract is perhaps most evident in the rise of contingency employment, including part-time, temporary service and contract labor, in the United States. This shift has enabled employers to accommodate fluctuating labor force demands and avoid costly benefits. As more workers move into contingency employment, the cost of benefits for them and their families shifts from employer to employee. Significant gaps in health care coverage and retirement provisions are partly tied to the increased reliance on contingency workers. Nationally, it is estimated that as much as one-fourth of the entire civilian labor force may now work on a contingency basis (Verespej), creating a significant cost advantage for employers and a drain on depressed family incomes.



Trends in part-time employment alone suggest that contingency work may be more extensive in Kentucky. As illustrated, part-time employment in Kentucky remained relatively constant and closely aligned with national trends over the 1982-1992 decade. While the number of Kentuckians engaged in involuntary part-time work exceeded national averages over much of the decade, the gap has virtually closed. Kentuckians who work part-time by choice also closely parallel national averages. In 1992, the combination of voluntary and involuntary part-time employees represented

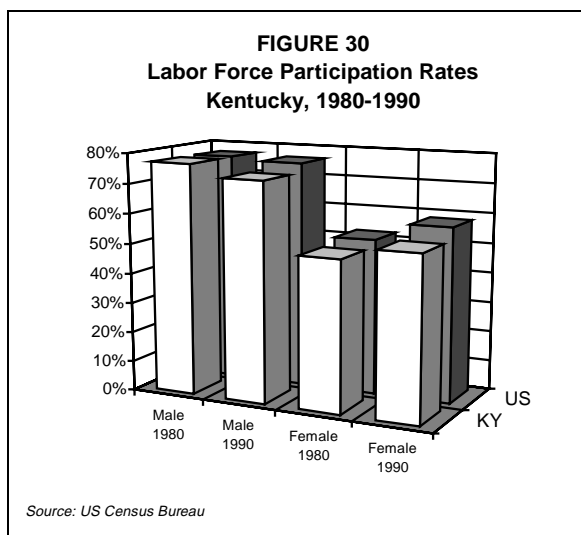
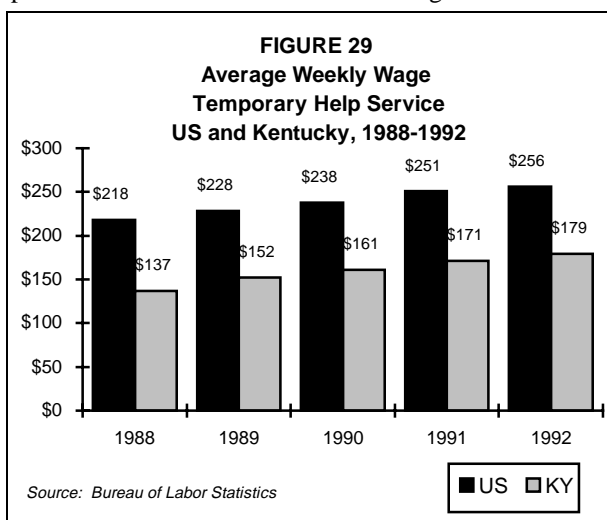
19.2 percent of the state's labor force, according to the Bureau of Labor Statistics. BLS reports that, compared to full-time employees, only a small fraction of part-time workers enjoys benefits such as sick leave, medical care, retirement benefits or paid holidays.

The Context of Change

Further evidence of the growing presence of contingency workers is seen in the expansion of temporary help service employment. According to a 1994 Legislative Research Commission (LRC) study, the ranks of Kentuckians employed by these services grew 31.5 percent between 1988-1992, from 12,160 to 17,756 workers. By comparison, temporary help service employment grew 20 percent nationally over the same time period. The implications of rapid growth in this sector of employment are significant for Kentuckians who earn considerably less than temporary service employees around the nation and enjoy minimal benefits. And, while weekly wages for temporary service employees in Kentucky rose 23.4 percent between 1988 and 1992, they remained 30 percent lower than the national average. As illustrated, Kentuckians employed by temporary help services earned an average of \$77 a week less than their counterparts nationally. Temporary help service work is also unlikely to provide employees with benefits. LRC found that, while temporary help agencies in Kentucky offered a range of benefits, many were contingent upon completion of a required period of continuous work, which most employees were unable to complete.

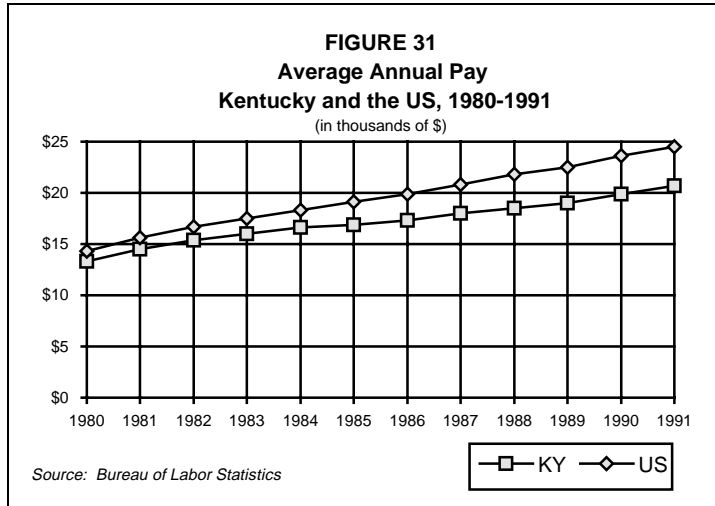
The earnings picture is made more bleak in Kentucky by lower than average labor force participation rates, a key predictor of earnings, among both men and women. More women in Kentucky report choosing to be homemakers and more older men report disabilities or illness as reasons for non-participation, according to the Cabinet for Workforce Development. While Kentucky's civilian labor force

continued to expand over the 1980-1990 decade, from 1.7 million workers to 1.8 million, the rate of labor force participation among men declined sharply. Kentucky's male labor force participation rate fell in its national ranking from 34th to 44th. While women expanded their rate of participation, the state's ranking in this area also fell, from 38th to 42nd. Female labor force participation in Kentucky, depressed in part by obstacles to transportation and child care in rural areas, trails every surrounding state but West Virginia, as well as the national average. The ability of women in Kentucky to participate in the labor force is critical to the expansion of family income, particularly in those households headed



by women alone.

As declining percentages of Kentuckians participated in the pursuit of prosperity, those engaged in work, particularly in expanding sectors of the economy, often earned wages that



trailed the national average. As illustrated, average annual pay in Kentucky consistently lagged behind the national average over the 1980-1990 decade and helped sustain a disparity between the per capita income of the average American (\$14,420 in 1990) and the average Kentuckian (\$11,153). By 1991, the average annual pay for Kentuckians stood at \$20,700, as compared to a national average of

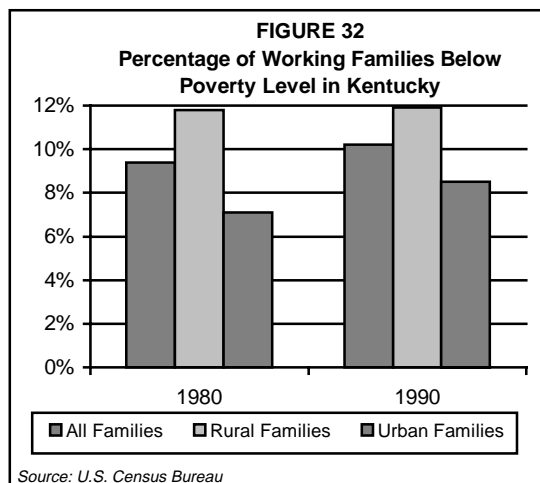
\$24,500. Contributing to the overall gap between state and national wages were significantly lower hourly wage rates in expanding sectors of the economy, most notably the service industry; financial, insurance and real estate; construction; and wholesale trade. While manufacturing and mining workers enjoy higher than average hourly wages, the average Kentuckian earns less per hour and per year than his or her counterparts on the national level.

WORKING BUT POOR

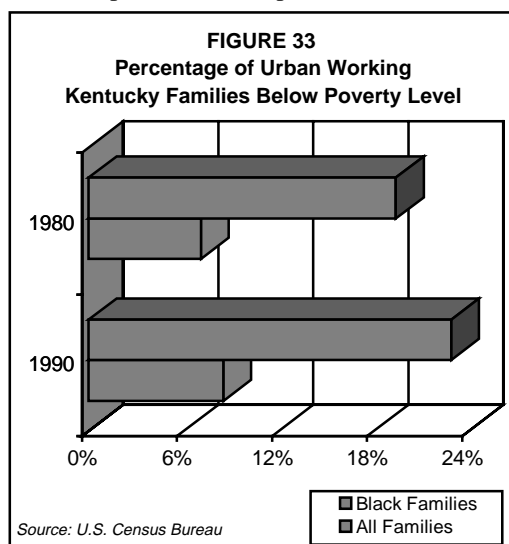
The portion of Kentucky families who work but remain poor has expanded.

Each year millions of Americans work or look for work, yet they and their families continue to live in poverty. The plight of the working poor has received growing attention as the portion of America's workforce living in poverty has increased steadily since 1974. It has been estimated that as much as 18 percent of the nation's labor force works for wages that would not lift a family of four out of poverty, circumstances that are being mediated by overtime hours, multiple jobs and, more significantly, the presence of two wage earners. By one estimate, 6.6 million Americans — 5.5 percent of the nation's labor force — lived in families whose incomes fell below the poverty level in 1989. Among blacks and Hispanics from poor families, however, the percentage was 2.5 times that for poor working whites. Working women were only slightly more likely (6 percent versus 5.2 percent) than working men to live in poor families (Gardner & Herz).

Among working families (those in which the householder worked some time during the year), 6.3 percent nationally were below the poverty line. If a working family was headed by a woman, it was much more likely to be poor, as more than one-fifth (20.4 percent) lived in poverty. Like the poverty rate for working black individuals, the poverty rate for working black families (15.4 percent) was roughly 2.5 times that of working white families.



areas fell from 6,158 in 1980 to 5,274 in 1990. More than 37 percent of the decline was due to a net decrease in working families below the poverty level. During the past decade, the percentage of rural, black working families who lived below the poverty level in Kentucky fell from 19.1 percent to 16.1 percent.



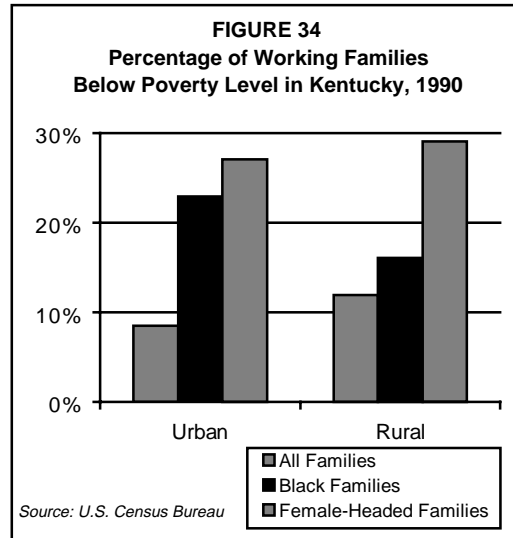
black women are particularly disadvantaged — more than two out of every five live in poverty. The combination of demographic categories most likely to result in poverty — black, urban, female-headed household — also had the fastest growing number of working poor families in the past decade. Even in female-headed black families in which the woman worked full-time, year-round, the poverty rate was still 15 percent in 1990.

The number of poor working families in Kentucky grew during the 1980s, from 9.4 percent of all working families in 1980 to 10.2 percent in 1990. Nearly the entire increase was attributable to a higher percentage of working poor families in urban areas, as the percentage of working poor families in rural areas remained virtually unchanged. This is likely due to the fact that many poor rural families migrated to urban areas in search of opportunity. Rural-to-urban migration of poor working families may be particularly strong among black families, as the total number of working black families in rural

In urban areas of the state, the percentage of black working families living in poverty increased from 19.4 percent to 22.9 percent. Meanwhile, as illustrated, the percentage of all urban working families below the poverty level in Kentucky rose only slightly, from 7.1 percent in 1980 to 8.5 percent in 1990. Consequently, not only is the percentage of urban black working families below the poverty level higher, their numbers are rising faster.

Gender differences are even more pronounced than racial differences among working families. Female-headed working families are considerably more likely than other families to live below the poverty level, and working families headed by

The trends in poverty levels for Kentucky's working families are discouraging signs of growing income inequality and deepening disadvantage that once was regarded as a circumstance from which most working people were shielded. With the exception of rural black families, the poverty rates for Kentucky's working families were higher in 1990 than they were 10 years earlier. While differences between rural and urban families are narrowing, working black families and female-headed families are far more likely to live in poverty than white families and families headed by a man or a husband and wife. Worse still, the gender and racial gaps are growing, serving only to exacerbate inequalities in Kentucky.



TIME POVERTY

We're working more jobs and longer hours just to keep up, but families are coming up short.

Inadequate support systems eroded by declining incomes are also forcing working families to run harder and faster just to keep up. Workers hold multiple jobs or routinely work overtime to compensate for the gap between wages and real or perceived needs. At the same time, "ubiquity," a near perpetual on-the-job state enabled by the now extensive use of beepers, fax machines, computers, and car phones, has increased the amount of time many employees are linked to their employers. A five-year study completed in 1993 by the Families and Work Institute found that U.S. workers average more than 45 hours a week on job-related activities (Nelton).

	1969	1987	Increase	% Change
All Participants	1,786	1,949	163	8.3%
Men	2,054	2,152	98	4.5%
Women	1,406	1,711	305	17.8%

Source: Juliet B. Schor, *The Overworked American*

Similarly, Harvard University economist Juliet B. Schor found that paid employment for the average U.S. worker increased 163 hours between 1969 and 1987. This extra *month* of work documented by Schor's research and detailed in her 1991 book, *The Overworked American*, is what American workers have

been willing to shoulder to keep the dream of prosperity alive or the reality of poverty at bay. It stands in sharp contrast to the trend toward more vacation hours and shorter work weeks in virtually every European country.

Whatever the driving cause behind overwork, it has resulted in an increasingly stressful "time squeeze," impinging on leisure time and adversely affecting marriage and family stability, as well as the health and well-being of working people. New BLS data show that an estimated 6 percent of the U.S. workforce now holds multiple jobs and the majority (56.5 percent)

The Context of Change

are married men or women (Uchitelle). This life of labor is particularly onerous for women, who have been found to shoulder a disproportionate share of household responsibilities. Unpaid labor performed by women at home consumes an estimated 31 hours a week over and above regular working hours (Fierman).

For the working poor, time poverty is just one of the many adverse outcomes of low-wage jobs. For others, it is a product of values, of perceptions of material need, as well as demanding contemporary standards of cleanliness. Whether driven by real or perceived needs, the devotion of expanded hours to work is adversely affecting family life, as well as the well-being of working people, for whom stress is a growing problem. Many of the long-term consequences of declining leisure and family time, however, will be realized only in the lives of generations to come.

The decline of leisure and family time is an issue which merits closer examination from a local perspective, Professor Dedic suggests. Importantly, families remain and locate in Kentucky for reasons that may be partly tied to the strength this location lends to families. Often-times, people choose Kentucky when other locations offer higher monetary reward. Building on this “quality of life” issue may present the Commonwealth with the unique opportunity to attract people and investment in the years to come.

“Every great nation draws its strength from a social contract, an unspoken agreement to provide for one another, to reach across the narrow self-interests of generations, ethnic groups, races, classes, and genders toward some vision of the common good.”

Katherine S. Newman

RIISING INEQUALITY

The gulf between the haves and have nots may be pushing prosperity farther out of reach for all of us.

Today, the distance between those at the top and those at the bottom of the nation’s economic ladder is wider than at any time since 1947, according to Census Bureau estimates. Others suggest the gap is wider than it has been since the late 1930s (Starobin). Regarded by some economists as a social and economic issue without rival on our horizon, income inequality is expected to doggedly pursue U.S. policymakers at every level into the 21st Century. While there is some evidence that the economic chasm between the haves and have nots in America may be narrowing, it is, nevertheless, a problem that may haunt the nation for years to come.

One of the key determinants of income distribution is wage equality, which has been eroded by a decline or flattening of real wage growth in the United States. It can be traced to 1974 when the average weekly earnings (adjusted for inflation) of production workers, who represent about 80 percent of the labor force, began to fall. Real family income, on the other hand, which includes income from high-wage earners and a variety of sources, has shown positive though not uninterrupted growth since 1983, largely because women have entered the

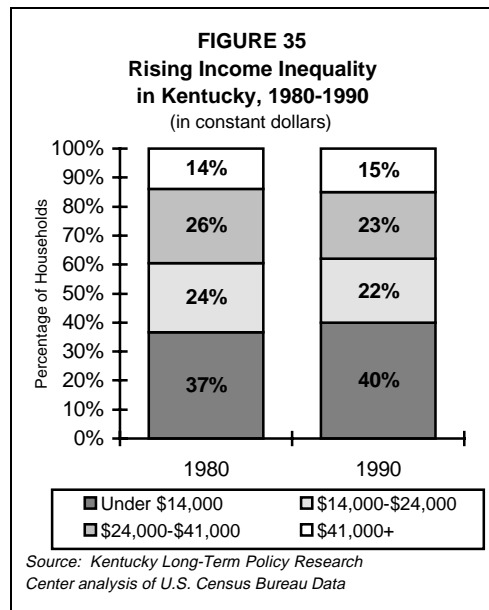
labor force in record numbers and bolstered family income. But, as Wallace Peterson and many others have noted, the gains in family income that women have enabled are not sustainable. The inadequacies of wages become all too apparent, particularly for women, when families disintegrate and a single wage earner attempts to do the job of two.

While wages have been falling for workers at every rank, low-wage earners have been getting poorer faster than their upper income counterparts. Rand Corporation economist Lynn A. Karoly has found a general pattern of real wage decline from 1974 to the early 1980s when wage gains were made. Since then, real wages have rebounded mostly due to rising labor income for women. Men's real wages showed little change during the last half of the 1980s, and in 1989 were still more than 10 percent below their 1973 peak. Karoly found that among men the sharpest declines in weekly and hourly wages fell "almost exclusively" on the lowest wage earners, and the gap between men at the 90th percentile and those at the 10th percentile had widened by about 35 percent since 1967.

Women, in contrast to men, experienced 10 to 30 percent growth in real median labor income between 1973 and 1989, according to Karoly. Their earnings, however, continue to lag far behind those of men. Income inequality was also evident among female wage earners, as wage growth at the lower strata slowed after 1979 and actually reversed. At the top of the income distribution, wage growth accelerated during this same time period, increasing the gap between high and low female wage earners by an estimated 20 percent since 1979.

In their 1994 Labor Day report, *The State of Working America*, the Economic Policy Institute's annual barometer of work in the United States, Lawrence Mishel and Jared Bernstein reported, "The majority of Americans remain worse off in the early 1990s than they were at the end of the 1970s." And, they add, the impact is broad-based. Deteriorating wages "have dragged new groups of workers down with them," affecting even college-educated men, whose wages have fallen 5 percent since 1989. Males with only a high school diploma, however, have experienced a 17 percent decline in their wages since 1979. Moreover, they report, the "middle class squeeze" and patterns of income inequality have persisted.

In Kentucky, rising income inequality was evident over the most recent decade, even as wages had begun to stabilize nationally.



When household incomes are analyzed in constant dollars, adjusted for inflation, Kentucky's middle class clearly experienced loss, as more Kentuckians moved into lower and higher income strata. As the percentage of households with incomes below \$14,000 a year grew by 3 percentage points, the percentage of middle-income householders shrunk. Households with incomes ranging from \$14,000 to \$24,000 a year, as well as those with incomes from \$24,000 to \$41,000 decreased. At the same time, the number of Kentucky households with incomes above \$41,000 a year increased by 1 percentage point.

Increasingly, the research of economists suggests that the widening gap between rich and poor is having an impact that reaches well beyond low-income households. Some believe it is inhibiting growth of the U.S. economy and having a ripple impact throughout all

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income levels. For example, studies have shown that cities with wide income disparities experience slower growth in jobs and income. The impoverishment and decline that inequality fosters is believed to discourage investment and, in turn, adversely affect productivity (Bernstein). The emerging body of work on inequality challenges past assumptions about the extent of inequality's reach and underscores the importance of closing the economic chasm that has unfolded between rich and poor. Unless we move to do so, the social and economic fabric of our state and our nation ultimately may come unraveled.

CLOSING GAPS THROUGH COOPERATION

*Joint worker-manager problem solving may offer
the best hope for an improved economic future.*

As more workers face growing uncertainty fueled by stagnant wages, diminishing benefits, continued layoffs and the prospect of rising workloads and work hours, the critical relationship between worker and employer is being undermined. Because the quality of that relationship figures prominently in productivity and, hence, in the future of the American economy, the importance of forging joint worker-management efforts to address problems rises on the policymaking landscape. Many, however, believe that joint solutions to problems, such as rising health care and workers' compensation costs, will only emerge when workers regain a voice in the dialogue. In the past, labor unions have provided that voice. As pressure to restore balance to the relationship between workers and managers mounts, they may regain strength or a new structure for constructive engagement may emerge.

Futurist Joseph Coates places the power imbalance between management and labor at the top of the list of human resource issues on the horizon, the resolution of which he believes will shape the future of small and large enterprises, as well as the outcomes of national elections. Liberated by technology and cultural transformations in the workplace, workers are increasingly reasserting their rights. The ensuing debate between emboldened employees and their employers could yield important, workable solutions to problems that continue to inhibit both productivity and prosperity. Conversely, tensions may escalate as the interests of workers are further undermined.

While the protracted downward spiral in national union membership would seem to portend the continuation of decline, increasing levels of worker discontent suggest that labor may be poised for a resurgence in coming years. Additionally, as noted in the initial report of the Commission on the Future of Worker-Management Relations, public opinion of labor unions has become increasingly favorable since the late 1980s. Louis Harris and Associates and Roper pollsters reported favorable public opinion of labor unions in 1994 though both pollsters cautioned that any new gains by labor would depend on the quality of its leadership and its ability to tap into growing service and professional ranks.

As an alternative to traditional unions, "associations" of professionals and other workers may emerge to strengthen the position of workers. Through associations, workers could gain access to benefits and services that are declining in availability and growing in cost, as well as a voice representing their interests. It is a model that Massachusetts Institute of Technology Professor Thomas A. Kochan, an internationally recognized expert on industrial relations, has suggested as a possible scenario that would provide a socio-political focus for workers, opportunities for skills enhancement and access to benefits, among other things. Roper pollsters also cite the creation of associations as a viable future alternative to old-style unions, if they are unable to capitalize on growing discontent and uncertainty among American workers.

While the future role of unions or associations will be shaped partly by the emerging tensions between employer objectives and employee aspirations, the growing disfavor of adversarialism as a model for labor relations will also strongly influence its evolution. Outdated labor laws may be overhauled in coming years in order to enhance employer-employee cooperation and bring greater balance to industrial relations in the United States. Part of the impetus for such change has issued from the quality management movement which has forged a new level of cooperation between employer and employee. Moreover, negotiation as a means to dispute resolution has risen in stature throughout American society. As the future unfolds, these trends and tensions will influence both the overall climate of worker-management relations and the path to prosperity.

As we venture more and more deeply into the global economy, international “best practice” models will likely exert greater influence on the conduct of industrial relations in the United States. With the GATT treaty now ratified, models from countries like Germany, where a system of “co-determination” characterizes worker-management relations, may be adapted to the

As we venture more and more deeply into the global economy, international “best practice” models will likely exert greater influence on the conduct of industrial relations in the United States.

American industrial relations landscape. Here in the United States, an estimated 80 percent of the nation’s Fortune 500 companies have already entered the realm of co-determination with the formal establishment of employee involvement programs. At GM’s Saturn plant in Spring Hill, Tennessee, a unique Americanized version has emerged in the form of “co-partnership,” which relies on open communications, joint decision-making and a minimization of bureaucratic approaches to labor relations (Guzda).

Here in Kentucky, similar emerging partnerships are evident at Ford’s automotive plants in Louisville and at Rohm & Haas Chemical in Louisville. Along with Toyota, they offer important transferable models for relationships that give employees a role in shaping decisions. Moreover, the efforts of the Kentucky Labor Cabinet to cultivate regional labor-management committees through its Office of Labor-Management Relations have built a strong constituency in the state for cooperative problem-solving. In the past, that constituency has worked effectively to address rising unemployment insurance and workers’ compensation costs. Similarly, rising problems, such as gaps in pension provisions, health care and the increased reliance on contingency workers, can be addressed in a cooperative fashion. To that end, the Governor’s Labor-Management Council could form an important and increasingly visible focal point for developing a statewide vision for labor/worker-management cooperation.

On the national level, the Commission on the Future of Worker-Management Relations, which held 1993 hearings in Louisville, has documented an erosion of employee rights in addition to a well-documented decline in wages. Extensive testimony before the Commission also provided support for the co-determination model, which may emerge as a recommended means to institutionalizing employee involvement in decisionmaking at the national level. In the absence of the institutionalization of co-determination, the present adversarial system is likely to reassert itself, as workers react to a protracted series of actions that have adversely affected work, security and family life. Indeed, as 1994 grew to a close, General Motors employees went on strike to protest the company’s sustained reliance on overtime hours to meet rising demand.

FUTURE IMPLICATIONS

Stagnant wages, job instability and the erosion of employee benefits ultimately may carry a sizeable public price tag.

Nowhere is the potentially epochal nature of the era in which we live more apparent than in the evolving relationship between employer and employee. Some have suggested that the very nature of work is changing dramatically and irrevocably, that the job as we know it is fast becoming obsolete (Bridges). Still others wisely observe that past pundits also predicted the paperless office and the four-day work week. Nevertheless, the extent of economic pain in our society today compels us to push the trends we are witnessing into the future and visualize possible outcomes.

Several of the trajectories we have examined in this chapter suggest the possibility of a bleak future for many Kentuckians. Ironically, as new products and whole industries emerge at a startling pace, many Americans have watched helplessly as wages stagnated or declined, placing the American Dream out of their reach. In an economy driven by productivity and consumer demand, stagnant wages and mass layoffs continue to undermine consumer confidence. Some believe layoffs may render U.S. business and industry impotent to respond to expansion opportunities (Pearlstein). Moreover, more economists are pointing to persistent income inequality as an obstacle to productivity gains and income growth, as well as to movement into the middle class. In any event, the effects of restructuring and displacement are expected to dominate American public policy concerns for years to come.

As the marginally employed increase in number, the larger societal impact of employer retrenchment from benefit sponsorship will also be felt. If employers continue to shift costly responsibilities for benefits, significant unmet needs are certain to follow. This shift of benefit costs to more and more employees can be expected, for example, to increase public pressure on Congress for an overhaul of the Social Security System. At the state and federal level, policymakers will likely face continued and escalating pressure to ensure health care coverage, provide adequate retirement benefits to supplement Social Security, provide paid sick and family leave, and guarantee compensation for work-related injuries.

A push for more leisure time is also anticipated by a number of observers. It propels a number of the 25 major trends identified by Roper pollsters in 1994, including an expected demand for greater flexibility in working hours. Ultimately, they predict, the demand for more leisure time may change the way many work lives are shaped, from time-oriented to task-oriented. Constraints on time and increased consciousness of it will also give rise to continued demand for products and services that enable mobility. The relationship of the time famine to other trends identified by these pollsters is also evident, including the growing discontent women express with work over home and family, record low levels of satisfaction with work, and a perceptible decline in the work ethic.

Futurist David Macarov, author of *Quitting Time: The End of Work*, suggests the growth of "involuntary leisure" or unemployment in a world that cannot utilize the labor currently available to it will propel the expansion of leisure time. Historically, he points to a long-term trend toward less and less work, shorter work weeks and workdays, earlier retirements, and more leisure time. If growing worker dissatisfaction translates into a viable movement, the short-term trend toward overwork and a famine of time ultimately may be reversed.

Perhaps foremost among employee concerns is the rising conflict between work and family. A number of demographic trends, including slowing divorce rates, the economic decline associated with family disruption and the aging of the population, are at once a reflection of and a force behind the rise of a new family ethic. It is likely to raise support for employer

policies that strengthen families and, in turn, push these policies higher on the public agenda. Greater support for families, including flexible work arrangements and on-site child and adult care, could help reinforce a weakening bond between employer and employee.

Broadly, many of the trends influencing the future of the pursuit of prosperity in Kentucky suggest worsening circumstances in the lives of a growing segment of the workforce, a trend that may influence prospects for all income levels. While current trends are likely to persist over the short-term, they will almost certainly force a public policy reckoning over the long-term, as government — and taxpayers — confront the prospect of assuming significant burdens once partially borne by employers. As tensions, frustrations and even despair mounts among a growing segment of workers, a backlash also appears inevitable. Rather than await its arrival, policymakers can begin now to help mediate the rising conflict between work and family, workers and managers. Moreover, they can begin to implement policies and programs aimed at closing gaps in wages and benefits before the consequences of these inadequacies become unmanageable social and economic problems.

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THE FOUNDATION FOR PROGRESS

The one certainty on our horizon is rapid change that will compel constant adaptation to a dynamic environment. As a consequence, the immense economic and social challenges we face today will quickly be supplanted by new and perhaps more complex problems, mediated only by advances in our abilities to manage change. Consequently, the importance of strengthening the foundation that will support Kentucky's future progress cannot be overstated. Our ability to negotiate the changes ahead depends upon the structural support provided by government, community, family and individuals. The skeleton of a well-constructed physical infrastructure must be matched with the realization of our fullest human potential if we are to create and capture opportunity in the coming years. We will be challenged to repair, fine tune, maintain and expand Kentucky's foundation for progress to ready our state for the certain and dramatic changes ahead.

Gradually, the capacity of our physical infrastructure — electronic highways and roadways, capital, natural resources — will depend on the realization of our human potential. Intellect, creativity and the ability to utilize rapidly changing technology will yield extraordinary breakthroughs in infrastructure development and enable dramatic cost savings. The ways in which we plan and utilize limited physical resources will be refined by technology and the rapid discovery and invention it enables. New, cost-saving materials and methods will emerge, root causes of problems will be identified and corrected, and sophisticated measurements and tools for evaluation will enable quick revisions of unworkable approaches. While new problems and obstacles will emerge, our ability to correct and overcome them can be expected to accelerate at a commensurate pace.

As we look to Kentucky's future, we must anticipate change, rather than be swept aside by it. To do so, it will be necessary to develop sophisticated fiscal policies based upon careful empirical analyses; to capture the full potential of our transportation system; and to preserve the integrity of our environment. None of these ends, however, can be achieved without people who are prepared to meet them. Clearly, we must become a more healthy, more educated, and more prosperous state. Widespread poverty and under-education are undermining our ability to achieve progress in every arena. While we have done much to address these long-standing structural problems, they have persisted and, in the case of poverty, worsened. As a consequence, the future of the Commonwealth is being jeopardized, perhaps as never before.

Just as increasingly sophisticated skills will be required of the citizens of Kentucky, government will be held to ever rising standards of excellence. A more educated, empowered public of demanding consumers will expect quality public service and products, delivered in a timely, cost-efficient manner. Because government's platter of responsibilities is becoming more expansive and stretching limited resources, the imperative of establishing priorities and long-term goals and strategies, setting benchmarks for progress, and periodically measuring and evaluating our progress is also growing. It is a process that can be enriched at every level by expanding civic participation and social engagement, a vital resource which could lead Kentucky into a new era of prosperity.

KENTUCKY'S FISCAL HEALTH

To manage the trends affecting the state and seize the many opportunities on the horizon, Kentucky must put its limited resources to work efficiently and effectively. This is particularly true of our financial resources, which are easily expended but virtually impossible to recover. While our fiscal health depends partly on forces far beyond the control of Kentucky's policy-makers, it also depends on how the fiscal system is structured. Kentucky's state and local spending mix, its tax structure, its debt position and local financial resources must form a cohesive unit, if we are to harness important technological, economic, and demographic changes that will affect everyone's future.

STATE AND LOCAL SPENDING

Kentucky state government assumes disproportionate responsibility for services, centralizing oversight and impact.

One of the most salient characteristics of Kentucky's fiscal structure is that taxing and spending are far more concentrated at the state level than in most other states. In Kentucky, state government was responsible for 73 percent of total state and local expenditures during fiscal year 1991. Nationally, state governments were responsible for only 59 percent of total state and local expenditures. State capital outlays were 61 percent of total state and local capital outlays in Kentucky, compared to a national average of only 40 percent. State revenue sharing with local government trails the national average by 18 percent on a per capita basis (Government Finances and State Government Finances). In short, the people of Kentucky rely heavily on state government to provide services, financing, infrastructure and leadership on matters that are traditionally the obligations or prerogatives of local government in other states.

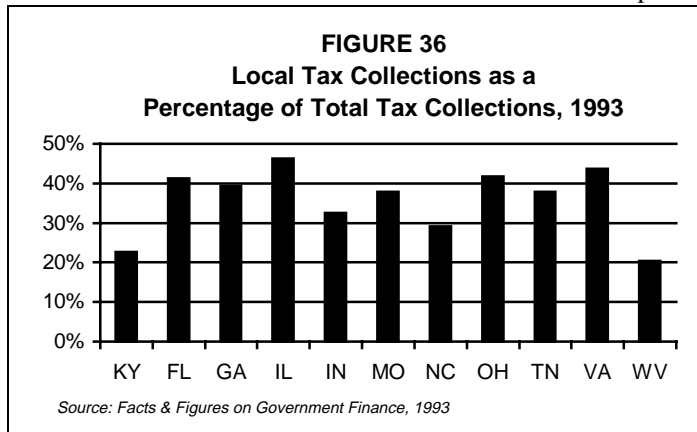
The concentration of fiscal responsibilities at the state level has several implications. On the positive side, fiscal policy may be more coordinated and coherent, and differences in local financial resources may be more easily remedied in Kentucky than in other states. On the negative side, concentration of fiscal functions may take important decisions out of the hands of communities and local officials, who often have a better notion of their needs. Clearly, the impact of decisions made at the state level are larger in Kentucky than in other states.

TAX STRUCTURE

While the focus of considerable debate, the question of Kentucky's tax competitiveness remains unanswered.

Three common concerns about a state's tax structure are revenue adequacy, tax competitiveness and tax equity, all of which are important elements in constructing a strong fiscal foundation for future growth. Revenue adequacy means that revenue growth keeps pace with growth in the economy so state programs can be adequately funded without frequent adjustments in the tax structure. For the period between fiscal year 1975 and fiscal year 1990, Kentucky's general fund revenues grew 23 percent faster than state personal income. Nationally, state general fund revenues grew more slowly, at almost exactly the same rate as personal income. Kentucky's general fund revenues as a percentage of state personal income increased from 5.5 percent in fiscal year 1972 to 7.4 percent in fiscal year 1991, then declined to 6.8 percent in fiscal year 1994. After fiscal year 1991, general fund revenues grew at only about half the rate of personal income, far short of the high growth rates of earlier years. The lower growth rates are partly attributable to changes in tax laws (Office of Financial Management and Economic Analysis).

Tax competitiveness is an issue on the minds of many across the Commonwealth. Some commonly used measures of tax competitiveness include state and local taxes per capita or as a percentage of personal income. These are often cited because of their ease of calculation, but they have some distinct weaknesses. Total tax revenue includes sources such as individual income or inheritance taxes which have, at best, only indirect effects on business. More generally, very few measures of tax competitiveness, even ones which focus specifically on corporate income tax, severance fees, licensing fees and the like, capture inter-industry differences in tax treatment or reflect the effects of the tax structure on profit streams over time (Papke).



The Advisory Commission on Intergovernmental Relations (ACIR) annually measures each state's tax capacity (the revenue potential of the tax base) and tax effort (the percentage of tax capacity used by the state). The findings of the ACIR formed the basis for recommendations made by the Kentucky Economic Development Corporation¹ in its 1993 report on Kentucky's tax

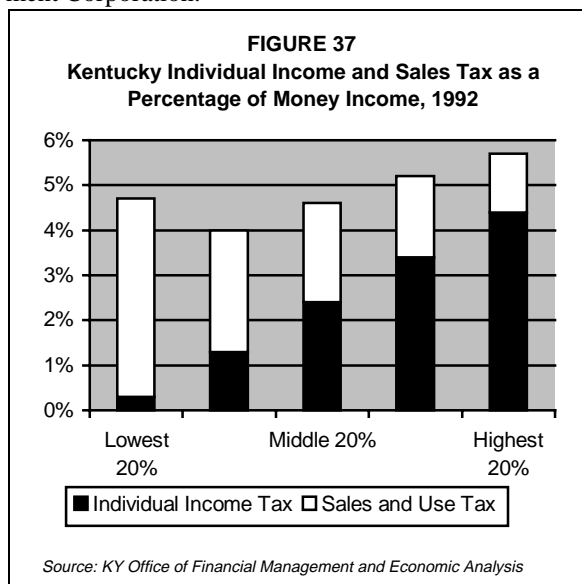
competitiveness. Citing a high tax effort on corporate and personal income, the report recommends, among other things, increasing property taxes to make up for modest tax reductions in personal and corporate income taxes. However, before concluding that Kentucky's tax system is not competitive with other states (and particularly neighboring states), there are several is-

¹ It is important to note that the Kentucky Economic Development Corporation is a private entity and should not be confused with the Kentucky Economic Development Cabinet.

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sues worth consideration. First, it is noteworthy that the ACIR data used in the report were from 1991, the first year of new tax increases enacted in 1990, and the state's tax effort on income has since fallen. Furthermore, ACIR's measure of tax effort suffers from some of the general weaknesses of tax competitiveness measures noted above. Most important, there simply is not enough available data on individual corporations in Kentucky to come to any sound conclusions about the state's tax competitiveness.

Regarding tax equity, Citizens for Tax Justice (CTJ) found in 1991 (the year after the state's tax changes) that Kentucky had lessened the regressivity of its tax structure since 1985, but middle- and low-income families in the state still paid a higher share of their money incomes in state and local income, property, sales and excise taxes than the wealthiest citizens. In 1991, families earning \$9,200 paid 12.5 percent of their money income in taxes, compared to the 10 percent rate paid by families earning \$31,500 and the 8 percent rate paid by families earning more than \$645,900 (McIntyre et al.). CTJ's suggestion in 1991 was for Kentucky to shift to a reliance on corporate and personal income taxes and to target relief for property taxes — completely contrary to the recommendations of the Kentucky Economic Development Corporation.



The higher tax rates borne by low-income citizens of the state are due to relatively regressive local taxes; when separated from local taxes, state tax burdens are fairly progressive across income brackets, according to the Kentucky Office of Financial Management and Economic Analysis. State tax rates are somewhat higher for households with the lowest money incomes, but are progressive for households in the four highest income brackets. One important caveat is that this analysis only calculates the percentage of money income paid in taxes. Non-monetary income, which largely goes to lower-income households, is not counted. Were non-monetary income to be included in these measures,

state taxes alone would appear more progressive and state and local taxes combined would appear less regressive.

The conflicting advice from the Kentucky Economic Development Corporation and CTJ on how to structure the state's tax system is due in part to different priorities and in part to a lack of knowledge about tax burdens in the state, particularly on corporations. This was highlighted in the Kentucky Economics Association's call for 1995 research, which stated that much of the evidence on Kentucky's tax competitiveness is anecdotal and based on self-reporting by firms, rather than on actual, unbiased research. Another tax issue on which we lack information is the effect that the various tax incentives given to economic development projects will have on future tax revenues. Furthermore, cost-benefit analyses of tax incentive packages are performed in piecemeal fashion, with no comprehensive assessment of the collective effects of the state's myriad incentive programs.

It is clear that more detailed information about the state's tax structure and its effects on business location, social equity and state revenues is needed. More fundamental are decisions

about the relative priorities to be given to revenue adequacy, tax competitiveness and tax justice. Research efforts in the past year have made significant contributions in addressing these issues and in establishing priorities among tax goals. The analysis resulting from these efforts will help Kentucky design a cogent, useful and efficient tax system to nurture economic and human development.

DEBT POSITION

*Kentucky's debt level remains manageable and sustainable,
but more long-term planning would enable
better anticipation of expenditures.*

The General Assembly authorizes debt financing for state property and buildings, highways, school and public university projects and other types of infrastructure. The size and structure of Kentucky's debt are important concerns because debt obligations lock the state into future spending requirements, because debt must be repaid before other expenditures can be made. Thus, increases in our debt burden may reduce flexibility in setting future budget priorities. Due to the retirement of debt and lower interest rates, Kentucky's debt burden has been somewhat below historical levels in recent years. However, the state suffers from a lack of long-term planning for capital expenditures, which would help avoid crisis situations, such as the deterioration of state parks or over-crowded prisons which prompt court-ordered new construction.

The level of debt that the state can afford depends upon the credit market, revenue projections and assets. In addition, the amount of debt the state chooses to bear depends on subjective decisions on future needs and spending priorities. Effectively, there is no absolute metric for the size or appropriateness of a state's debt structure. There are, however, some principles which guide debt obligations and help assess trends in the state's debt position. One of those principles holds that a state should maintain debt at relatively constant or declining levels compared to various indicators of wealth. From fiscal year 1981 to fiscal year 1994, Kentucky's debt as a percentage of assessed property fell from 2.12 percent to 1.59 percent, and debt as a percentage of personal income fell from 6.54 percent to 5.45 percent (Office of Financial Management and Economic Analysis).

The ratio of debt service to total revenue is used as the primary indicator of the state's debt capacity. This ratio averaged 6.06 percent between fiscal year 1967 and fiscal year 1994, and 5.52 percent between fiscal year 1984 and fiscal year 1994. In fiscal year 1994, the ratio stood at 5.52 percent and is projected to be 5.84 percent in fiscal year 1995 and 5.77 percent in fiscal year 1996. Due to maturing debt, the level of debt in fiscal year 1996 will be lower than 1993 or 1994 in inflation-adjusted dollars. These trends suggest that Kentucky has been able to maintain historically low debt service in recent years (Office of Financial Management and Economic Analysis).

Comparisons with other states on such measures as debt per capita, debt as a percent of personal income, or debt as a percent of revenues suggest that Kentucky has a relatively high amount of debt; Kentucky ranks among the top 10 states in all three aforementioned categories (Moody's). But Kentucky's high concentration of fiscal functions and responsibilities at the state level is largely responsible for the state's high ranking. When state and local debt are combined, Kentucky has an average ranking for debt measures. For example, Kentucky ranked ninth in state debt per capita for 1991, but 22nd in state *and local* debt per capita (Office of Financial Management and Economic Analysis).

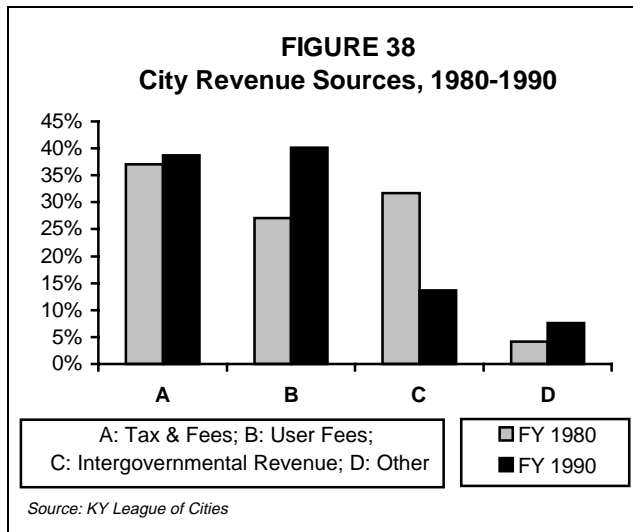
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Standard & Poor's Corporation (S&P), which rates, among other things, the risk of state-issued bonds, placed Kentucky's general obligation debt on negative credit watch in 1993, citing the state's inadequate budget reserve and spending pressures which outpaced revenue collections (S&P's Creditweek Municipal). The negative credit watch was not due to the amount of debt or the debt management. Also noteworthy is the fact that Kentucky's general obligation debt is only a small fraction of total debt and Kentucky has not issued any new general obligation debt since 1965. S&P approved of the budget passed in the summer of 1994 and consequently took the state off its negative credit watch and upgraded state revenue bonds from A to A+. However, the state will be expected to continue its responsible fiscal policies of adequately funding the Budget Reserve Trust Fund, funding continuing expenditures only with continuing revenues, and issuing a conservative amount of debt.

LOCAL FINANCE

*Unfunded mandates are exerting rising fiscal pressure
on city and county governments.*

Despite the concentration of fiscal responsibilities at the state level, the finances of counties, cities and special districts are still extremely important. Indeed, local governments are responsible for a quarter of total state and local expenditures in Kentucky. The Kentucky League of Cities reported in May 1993 that since 1980 the fiscal condition of the average city government in Kentucky has declined. Also, aggregate expenditures have exceeded aggregate revenues (excluding repayment and issuance of debt and other cash transfers necessary for constitutionally mandated balanced budgets), and cities have increased their debt burden to pay for excess spending. Outstanding city-issued revenue bonds increased by 54 percent between mid-year 1983 and mid-year 1991, rising from \$1.59 billion to \$2.45 billion. This debt increase is 3.3 times the amount by which aggregate city cash and investment balances rose between fiscal year 1980 and fiscal year 1990. Interest payments rose by 151 percent and climbed from 3.8 percent of total expenditures in 1980 to 4.5 percent in 1990 (Kentucky League of Cities).



Municipal user fees are also rising rapidly; they contributed 40.3 percent of total revenue in fiscal year 1990, compared to 27.1 percent in fiscal year 1980. Utility sales accounted for more than 70 percent of the increase in user fees. Rapidly rising user fees were necessary to help offset a sharp decline in revenue transfers from the state and federal government, from 31.7 percent of total local revenue in fiscal year 1980 to 13.6 percent of total revenue in fiscal year 1990 (Kentucky League of Cities).

At the county level, citizen desires for better standards of

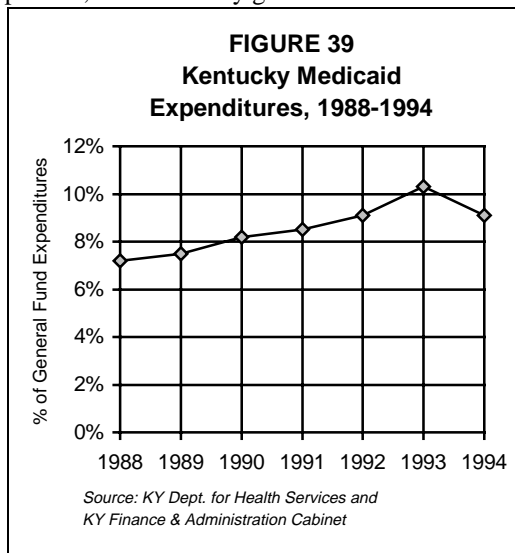
living and mandates from higher levels of government have raised the demand for traditional urban functions during the past 10 to 15 years. These functions include ambulance service, solid waste disposal, law enforcement, fire protection and park programs. Federal revenue sharing during the 1970s and 1980s enabled counties to provide new services. With the demise of federal revenue sharing, counties are now much more reluctant to initiate such services and many of the programs have been terminated or shifted to their own tax base via creation of single-purpose special tax districts. To help support growing demands on counties, state government has, in recent years, granted counties increased rights for revenue collections, including insurance premium taxes and occupational license taxes (payroll and net profit taxes). Because cities also have these revenue options, sharp city-county confrontations have erupted when some cities have attempted to annex territory. Better coordination of city-county services and revenues will be necessary in the future, as counties are expected to continue inheriting additional responsibilities, such as protecting water supplies and enforcing housing and building codes (Stinchcomb).

A burden on city and county budgets which has received particular scrutiny in the past two years is unfunded federal and state mandates. Local officials must, by law, first fund programs that have been established at a higher level of government before they can fund local programs. In 1993, Price Waterhouse estimated the cost of 10 unfunded federal mandates to cities with populations of more than 30,000. The report estimated the total cost for 1993 to be \$6.5 billion, and total costs from 1994 through 1998 to be \$54 billion. The three most costly unfunded federal mandates in 1993 were the Clean Water, Solid Waste Disposal and Safe Drinking Water Acts. Cities reported that unfunded federal mandate costs consumed an average of 11.7 percent of their locally raised revenues (Price Waterhouse).

FISCAL PRESSURES

Policymakers are increasingly challenged to do more with less.

Increasingly, citizens are demanding that government do more with less. Expenditures on health and education are consuming larger amounts of state revenues even while federal support for traditional programs is falling. Since 1980, programs and projects traditionally funded jointly by federal, state and local expenditures have received a smaller share of their funds from the federal government. This includes decreases in the percentage of federal funding for welfare and social services, Medicaid, transportation, housing, community development, and labor training (Hush). At the same time, voters are demanding lower taxes. It is widely anticipated that lower taxes will be an important issue in upcoming state and local elections. Lexington already experienced a bitter fight in 1994 over a payroll tax increase from 2.0 to 2.5 percent, which the city government said was necessary to maintain services.



While federal funds fall and tax reductions gain political momentum, the cost of important budget items continues to grow. From fiscal year 1988 to fiscal year 1993, general fund Medicaid expenditures (which do not include agency or federal expenditures) rose from 7.2 percent of all general fund expenditures to 10.3 percent. In fiscal year 1994, Medicaid expenditures receded to 9.1 percent of total general fund expenditures, although the expected trend is for the share of state expenditures spent on Medicaid to continue rising. Medicaid expenditures have nearly doubled (95 percent increase) since fiscal year 1988, while general fund revenues have risen by little more than 50 percent.

Importantly, higher health care costs are not simply restricted to Medicaid.

Health insurance in general is becoming more expensive. For example, the state provides health insurance for all local school district employees, including teachers, administration, maintenance and other workers. Between fiscal years 1990 and 1994, state health insurance expenditures for local school district employees alone rose \$49 million, primarily because of higher premiums.

Expenditures for education have also risen dramatically. Unlike Medicaid, though, education is not consuming an appreciably larger share of the budget because Kentucky has raised taxes to support additional funding. In the first year of the Kentucky Education Reform Act and the higher taxes enacted to support it, state revenues grew by about \$640 million (of course, some of this is due to natural expansion of the economy and inflation). Of the additional \$640 million, about 75 percent went to primary and secondary education, while another 15 percent went to higher education. Education spending consumes about half of total general fund expenditures in the Commonwealth, as it has over the past several decades.

FUTURE IMPLICATIONS

*As federal support continues to decline,
the need for long-term planning rises.*

Many of the trends in finance will simply be continuations of what has happened in the past, and rightfully so. Kentucky's fiscal system is relatively sound in an era when governments are under pressure to do more with less. However, one historical trend which does not serve the state well is the lack of comprehensive planning and knowledge about expenditures, revenues and taxes. State policymakers report inadequate monitoring of local debt, failure to anticipate student enrollments, incomplete long-term planning of capital expenditures and debt financing and unknown effects of business incentive packages as potential threats to the state's fiscal health. Rising program costs for health and education combined with falling federal support and pressure to reduce taxes will make filling the knowledge gaps more imperative.

NEW DIRECTIONS IN TRANSPORTATION

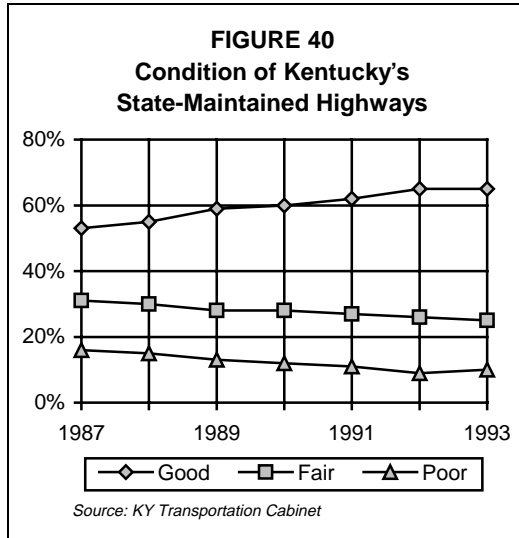
A quality transportation system that provides safe, efficient, and environmentally responsible movement of people and goods will be critical for Kentucky's future prosperity. Highways are the traditional backbone of this system, and they will continue to be so in coming years. However, a number of forces now at work will expand the role of other modes of transportation and dramatically alter the transportation planning process. Federal legislation, environmental considerations, competition for business and technological advances will affect the way projects are planned, how they are funded and even the modes chosen to deliver needed services.

Evidence of change can already be seen in the Transportation Cabinet's draft report of Kentucky's 20-year Statewide Transportation Plan for 1995 to 2014. The draft for this plan, released in October 1994, presents four basic goals for the transportation planning process: 1) preservation and management of the existing system; 2) enhancement of safety and convenience; 3) promotion of economic development; and 4) coordination of the planning process. How well Kentucky meets these four goals will determine the quality and usefulness of the state's transportation system in the coming years.

IMPROVING THE EXISTING SYSTEM

*Our population remained virtually unchanged during the 1980s,
but the number of Kentucky drivers and miles
driven outpaced the national average.*

The transportation system of the future will look much like that of the present, particularly in rural areas. However, significant changes are taking place in the use and management of transportation systems. The safety, efficiency and integrity of the existing structures and the services that use them will form a critical foundation for the transportation system which develops in the coming years.



Kentucky has made a strong commitment to maintaining and upgrading roadways and facilities, and the condition of roadways reflects that commitment. The average rideability index, a measure of the condition of pavement, has risen steadily over the past five years for state-maintained highways. As illustrated, the percentage of highways in good condition rose from 53 percent in 1987 to 65 percent in 1993.

Changes in the definition of structural deficiency and functional obsolescence make cross-year comparisons of bridge adequacy difficult, but the Transportation Cabinet reports that between 1987 and 1993 the percentage of functionally obsolete state-maintained bridges fell while the percentage of structurally deficient bridges

remained essentially unchanged. Finally, between 1988 and 1993, the number of injury accidents per 100 million vehicle miles of travel (100 MVM) fell from 85 to 70, while the total number of accidents per 100 MVM fell from 288 to 222 (Kentucky Transportation Cabinet).

These remarkable improvements have taken place despite increased stresses placed on the highway system. Between 1980 and 1990, Kentucky's total population and total highway mileage increased by less than 1 percent. During the same time period, vehicle registration increased by more than 12 percent and vehicle miles traveled (VMT) increased by more than 33 percent. Nationally, VMT has increased at a rate of 3.5 percent a year since 1983. Kentucky has the 10th highest VMT per capita in the country (Highway Statistics).

Contributing to the increased traffic on Kentucky highways has been a substantial rise in truck traffic, which is expected to continue growing. By the end of the decade, it is estimated that truck traffic may increase another 15 percent nationally, and, according to the Kentucky Transportation Cabinet, by as much as 20 percent in Kentucky. This is partly due to expanded reliance on just-in-time (JIT) production by manufacturers, including automobile assembly plants. JIT requires frequent — sometimes hourly — shipments from supplier firms to assemblers.

Public transportation is one means of reducing stress on the existing infrastructure while at the same time providing important services to urban commuters, citizens in rural areas, the elderly and the disabled. Urban services use motor buses, trolley buses or vans; none currently use rail transportation, although the possibilities of multimodal transportation corridors using light rail in northern Kentucky and Louisville are being examined. In some rural counties, access to public transportation remains a problem. Outside of Lexington, Louisville and Greater Cincinnati, there are 15 counties which do not have rural public transportation service, concentrated largely in the Purchase, Barren River and Lake Cumberland Area Development Districts. Importantly, transportation services for the elderly and disabled are available in all counties. Planned additions for the 1996 fiscal year include the construction and furnishing of an urban bus terminal and the purchases of between 60 and 80 vehicles for rural transportation services and approximately 90 vehicles for elderly and disabled transportation services (Kentucky Transportation Cabinet).

TOWARD COORDINATED PLANNING

The future of transportation — and economic development — will demand careful integration of transportation systems to move people and products.

While the Kentucky Transportation Cabinet's first two goals — maintaining the system and improving safety and service — focus on the present, the goals of promoting economic development and improving coordination in the planning process are more dynamic, looking to the horizon where new transportation needs are emerging. The changes at work in transportation, and in the planning process particularly, are largely driven by federal legislation. However, environmental considerations, shifts in funding mechanisms, increasing business competition in the global market and technological advances are trends which will require more coordinated planning and enable planners to more closely fit transportation services to the needs of users.

The key piece of federal legislation affecting transportation is the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). This revolutionary act adds teeth to the Clean Air Act for the first time by making transportation funds contingent on state and metropolitan compliance with air quality standards. The act also stresses the need for intermodalism (a linking of various modes of transportation) in the design of transportation structures and services, encourages states to change their transportation decision-making and management structure, requires states to engage in long-term planning of projects and funding, and makes highway expenditures more flexible. The act is revolutionary in that it expands the traditional focus of transportation professionals beyond highways, encouraging and enabling them to consider all modes of transportation in planning how to move people and goods.

The most obvious impact of ISTEA in Kentucky was the Transportation Cabinet's draft publication of Kentucky's new 20-year Statewide Transportation Plan in October 1994. This plan, which is required of all states, assesses the current condition of the state's air, roadway, rail and water systems and helps identify opportunities to improve interconnections between the different modes. The plan also promulgates steps to improve public participation in the planning process. In addition to the 20-year plan, states are required by ISTEA to produce a six-year transportation improvement program. Plans from metropolitan planning agencies are being used in developing the six-year program and the 20-year state plan.

Clearly, the establishment of a more integrated planning system is an important element of ISTEA, and has already brought about significant changes in Kentucky's planning process. Another goal of the legislation is improving the efficiency of the nation's transportation network via coordinated, interconnected modes of transportation, often referred to as "intermodal transportation." Intermodal management efforts which could lead to projects aimed at integrating the various transportation modes or addressing the particular needs of users of intermodal transportation have just begun in Kentucky. Most other states are in the same situation, however. Even at the national level, the U.S. Department of Transportation has been somewhat slow in adapting to some of the opportunities offered in ISTEA.

Besides federal legislation, environmental concerns such as air quality, land use, rights-of-way and energy consumption will require cooperation in the planning process. Resolution of difficult environmental problems will increasingly demand coordination among different levels of government, jurisdictions and planning agencies. Land use, for example, is an environmental concern requiring coordination among various planning entities. In some cases, fragmented planning for transportation, land use and economic development has caused highways to be congested soon after their completion. Transportation planners often cannot pre-

dict, and seldom have control over, land development adjacent to planned highways. Once residential, commercial or industrial construction has taken place, transportation may not be adequate to support the amount of travel brought about by development (Toussaint).

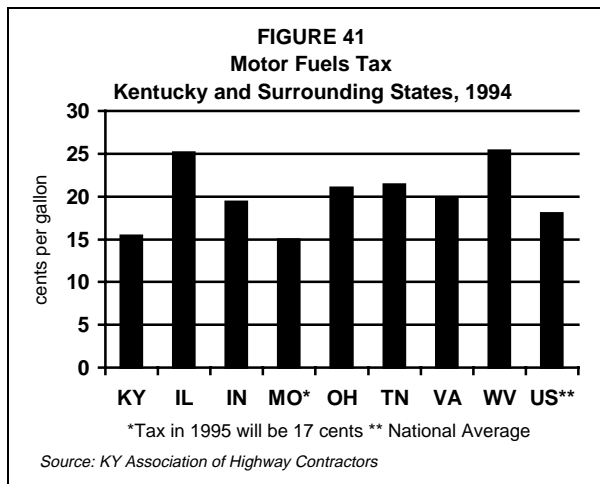
Another environmental issue closely related to land use considerations is right-of-way. Increasingly, construction of transportation routes may come into conflict with wetlands, endangered species, neighborhoods and historic properties (Toussaint). This is particularly true of highways, and may motivate transportation planners to seek alternatives such as rail and river transportation. Highway right-of-way is three times wider than railroad right-of-way (Harper), and water transportation generally uses routes which exist naturally, are far more scenic, and can support other types of activities as well.

Energy use is an environmental issue with obvious economic implications. The more efficiently Kentucky's business and industry can move supplies to their facilities and products to their markets, the more competitive they will be. Consumers who spend less on fuel will invest more money or spend their dollars on other goods and services. Energy efficiency will become particularly important if the United States faces an energy crisis like the ones in the 1970s. Navigable waterways, which total nearly 1,100 miles in Kentucky, and rail lines, which provide important freight linkages in remote parts of the state, may increasingly offer energy-efficient alternatives to traditional highways. A train, for example, can ship a ton of freight three times farther than a truck can on the same amount of fuel (Harper).

The shift away from special funds for highways towards more general transportation funding will add yet another impetus for increased coordination in the state's planning process. At the state level, a proposal was introduced in the House of Representatives during the 1994 regular session of the General Assembly which would have permitted voters to approve a constitutional amendment to create a general transportation fund rather than a restricted highway construction fund, which is largely funded by the motor fuels tax (Schneider). The bill, however, never made it to the House floor. Nonetheless, on the national level, ISTEA allows more than half of funds authorized for the federal highway program to be available to mass transit,

at the discretion of state and local officials. As other federal assistance for mass transit projects is reduced, highways may increasingly have to share funds with other elements of the transportation system.

At the same time, the major source of revenue for the road fund, Kentucky's motor fuels tax, has seen its revenue-generating capabilities eroded by inflation and improved fuel efficiency. Today, in inflation-adjusted dollars, the cost-per-mile in motor fuel taxes is approximately the same as it was before the last tax increase in 1986, and 26 percent lower than it



was in 1987 (Kentucky Association of Highway Contractors).

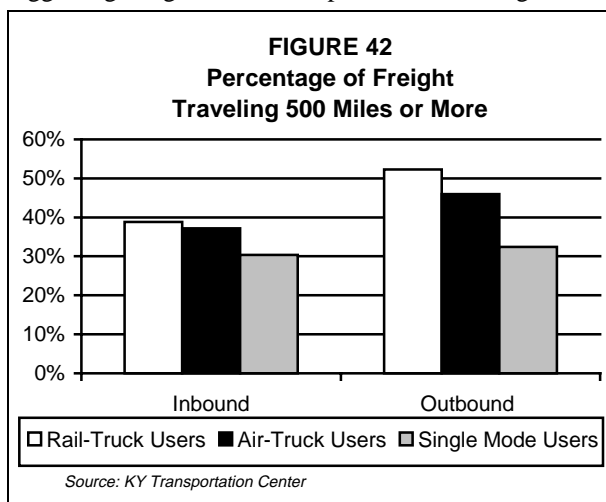
California, Texas, Florida and Washington have already passed legislation which exploits new opportunities for project funding provided by ISTEA; Kentucky must do the same. According to the National Commission on Intermodal Transportation, ISTEA offers states a variety of new ways to fund transportation projects by providing "more flexible use of Federal

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funds; revenue options such as tolls on Federal aid highways and bridges; broadening the definition of state match to include non-cash asset contributions by [the] private sector and local governments; flexibility to match Federal funds through investment credit provisions; greater private sector involvement in infrastructure construction, operation and maintenance; use of Federal funds for loan guarantees; syndication of tax credits; and creation of state revolving loan funds.”

As competition for business and industry locations has intensified among states in recent years, some have proffered huge tax breaks and free facilities, services and land as lures to manufacturers seeking new homes. Opponents of this approach argue that states should instead attract investment by providing good resources, a skilled and educated workforce, a high quality of life and an efficient and reliable transportation system. Toward this end, the Transportation Cabinet recently conducted a survey of the state's carriers (firms which provide freight services) and shippers (firms which use freight services) to gain a better understanding of the needs and uses of Kentucky's intermodal system.

The survey asked producing and manufacturing firms about their use of freight shipping by rail and truck or by air and truck. The findings show that larger firms with higher shipping costs (perhaps due to larger product size) are more likely to use rail-truck intermodal shipping, while larger firms with lower shipping costs are more likely to use air-truck intermodal shipping. More significantly, shippers either receiving or sending freight over long distances are more likely to use some combination of transportation modes. Shippers who use only one mode of transportation for their outbound products send close to 32 percent of their outbound shipments 500 miles or more. This is contrasted with rail-truck users, who send 52.3 percent of their outbound shipments 500 miles or more, and air-truck users, who send 46 percent of their shipments 500 miles or more. Firms which use rail-truck or air-truck transportation for inbound freight shipments are also more likely than other firms to receive the freight from more than 500 miles away. Furthermore, firms using rail-truck transportation (but not air-truck) are more likely to utilize advanced technologies for materials handling and tracking, suggesting a higher level of sophistication among intermodal users.



The implications of these findings for Kentucky's economic development are obvious. The Transportation Cabinet reports that future rail-truck intermodal users will be firms which are shipping increasingly large volumes of freight. In addition, "[t]hey will be firms that aggressively pursue suppliers and customers located in other parts of the country or other parts of the world. They will also be firms acquiring the latest logistics technology." Air-truck shippers will be those which ship products with a higher unit value over longer distances. As former federal Railroad Administrator Gil

Carmichael testified before the National Commission on Intermodal Transportation, "Freight will go where it is able to move most efficiently, and in a global economy it has many choices. Those enterprises which rely upon efficient intermodal service will follow it to new locations." As Kentucky finds itself competing for business not only with neighboring states but with for-

eign countries in the global economy, the availability of state-of-the-art intermodal equipment and services will become a strong competitive advantage.

Upgrades of all or part of Kentucky's 60 general aviation airports could also promote economic development by enabling more airports to accommodate corporate traffic, so business and industry can fly in spare parts, emergency supplies and computer replacements, as well as managers and employees. Airports would require a 5,000 foot runway, 24-four hour lighting, and Global Positioning Satellite capabilities, which embody new navigational and landing technology. Michael Flack, Executive Director of Blue Grass Airport, suggests that about 20 to 25 general aviation airports would need to be upgraded in order to establish a system of airports within one hour's drive from any potential economic development site.

Changes in technology are permitting transportation planners to meet specific needs of users of transportation services and facilities — an important economic development tool today, as well as in the years to come. The federal government's recent emphasis on Intelligent Vehicle Highway Systems, which apply developing technology to transportation, has emerged largely from competitive-

Intelligent Vehicle Highway Systems, which apply technology to transportation, enable a range of services, from information on highway conditions and directions, to faster responses to accidents.

ness concerns about technological applications to transportation in Japan and, to a lesser degree, in Germany. Technological advances in transportation encompass information processing, communications, control and electronics, and have a wide range of applications. Advanced technology provides better warning of road conditions, offers electronic directions to drivers, speeds up the response to accidents and can provide travelers information about the best routes and departure times, as well as information about car- and van-pool opportunities and travel schedules for public transportation (Texas Transportation Institute).

In Kentucky, advanced technology is being applied to commercial vehicle operations. In fact, Kentucky is the lead state in a joint project with other I-75 states and Canada to install equipment, check truck credentials and weigh trucks at highway speeds. The project, known as Advantage I-75, is expected to add great efficiency to shipping along I-75, as trucks currently face 22 separate weigh-stations between Florida and Canada.

The Advantage I-75 project, which also includes private trucking companies and the federal government in the planning process, is one example of how transportation will not only become more user-friendly, but will also require new forms of coordinated planning. Unfortunately, there is no formal mechanism for multinational or multi-state planning; even multi-jurisdictional planning between state and local agencies is not well-established or well-coordinated. The National Commission on Intermodal Transportation reports that metropolitan planning organizations (MPOs) commonly give intermodal freight transportation low priority. However, if states are to develop a transportation network capable of supporting business and industry participating in the global economy, cities will have to play a major role in intermodal planning. Kentucky's MPOs can learn from the Alameda Corridor Project in California, which is a partnership project involving ports, railroads and surrounding cities to move international freight more efficiently through the ports to the rest of the country. Similarly, the Delaware Valley MPO in Pennsylvania has formed a Freight Task Force comprised of carriers, shippers and receivers in the region (National Commission on Intermodal Transportation).

FUTURE IMPLICATIONS

The ways in which we think about and plan for transportation are being altered by technology and need.

Kentucky has shown in the last several years that it is making a firm commitment to improving service, safety and convenience and maintaining the existing transportation infrastructure. This, of course, must continue if we are to build a strong foundation for progress. However, facility maintenance and service improvements cannot be our only goals. Federal legislation, environmental concerns, business needs and technological advances are pushing transportation planners to break old traditions and habits. Innovative applications of technology and new means of funding projects must be sought; coordination among levels of government, among states, and even among nations must be improved; long-term environmental implications of transportation routes, facilities and modes must be considered. Above all, planners must eschew thinking about transportation in terms of moving cars or trains or barges via roads or rail or rivers. Rather, transportation must be thought of, and planned accordingly, as the movement of people and goods within a single, seamless network. As in many other arenas, the more quickly we move toward this new paradigm, the sooner we will recoup the benefits of such a system.

PRESERVING ENVIRONMENTAL INTEGRITY

Conventional wisdom has long held that those states which exhibit a strong commitment to the environment do so at the risk of inhibiting development and income growth. This altogether logical assumption rests on the premise that strict regulatory environments exact a cost that is borne by enterprises and, in turn, by their employees, their families and their communities. This tension between the goals of economic vitality and environmental quality has fueled debate between competing interests and engendered a measure of uncertainty among policymakers, who are challenged to create opportunities for prosperity while preserving the environment. As in many arenas, however, the light of conventional wisdom has dimmed under closer scrutiny. Recent research has identified a strong correlation between environmental integrity and income growth in states, challenging long-held assumptions and suggesting the need for a new paradigm for development.

Among those researchers who have explored the relationship of economic health to environmental quality are University of Kentucky Professors Stephan J. Goetz and Richard C. Ready, who tested traditional assumptions about the relationship of the two in a 1993 analysis of data from the 50 states. States with higher environmental quality were found to enjoy faster rates of growth than states with lower environmental quality. While cautioning that further study is merited, the authors findings suggested states with better environmental conditions experienced more rapid income growth, and that income growth was not affected significantly by environmental policies.

Similarly, Stephen M. Meyer, professor of political science at the Massachusetts Institute of Technology, examined the relationship between environmental rankings and economic growth and found that the U.S. record over the past two decades “clearly and unambiguously” refutes the theory that strong environmental policies inhibit economic growth. Instead, Meyer, who found “surprisingly little rigorous research to substantiate” the long-held environmental impact theory, found “a clear and consistent positive relationship between the states’ environmental effort and their economic performance.” At a minimum, Meyer concluded, the data show that the pursuit of environmental quality does not hinder economic growth and development. “The environmental impact hypothesis, while theoretically plausible,” Meyer offers in summary, “has no empirical foundation and focuses attention on what is probably one of the least influential factors affecting the pace of economic growth and development among the states.”

These findings not only broaden our understanding of the role environmental quality plays in the development of our economy, they underscore the importance of establishing an empirical foundation for policies and programs. The systematic collection, management, evaluation and reporting of data enables policymakers, regulators and the regulated community to target initiative and investment where it is most needed. In addition, routine communications, as well as more comprehensive periodic reporting, provides valuable information about “best practice” models that enable a range of entities, from small cities to private industry, to learn about more effective, cost efficient means to environmental remediation.

It has become increasingly clear that our common wealth is dependent upon the health of our natural environment. While we have prospered greatly from the immense wealth of

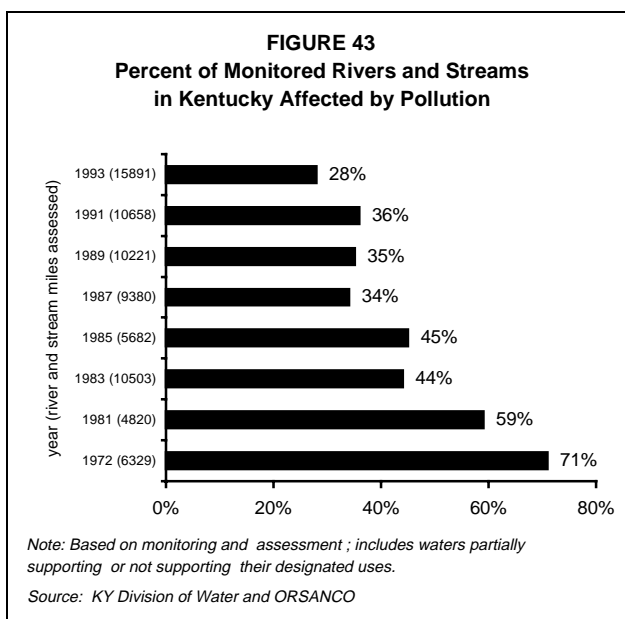
The Context of Change

Kentucky's natural resources, we have often done so in the interest of short-term capital gain — bequeathing long-term environmental consequences to future generations at immeasurable cost. As our economy shifts away from heavy, natural-resource-dependent industries, to an array of enterprises driven by information technology, economic development and growth may demand fewer and fewer environmental compromises. While Kentucky has made significant progress in restoring health to its environment, much more remains to be done to reverse the negative impacts of pollution and prevent costly and destructive future problems. Significant evidence suggests that in doing so, we will strengthen the foundation for progress and possibly expand opportunity and income.

The following status report on Kentucky's environment was prepared by Leslie Cole, Executive Director of the Kentucky Environmental Quality Commission (EQC), with the assistance of Peggy Pauley, Assistant Director, and Paula Nye, Administrative Assistant. The information appearing in this report was assembled from data collected to update EQC's 1992 report, The State of Kentucky's Environment, a comprehensive assessment of Kentucky's environmental status. The EQC is a seven-member citizen's commission established under law to advise state officials on environmental matters, monitor environmental trends and conditions and provide a public forum for the discussion and resolution of environmental issues in the state.

WATER QUALITY

The quality of Kentucky's water continues to improve, but substantial investment in infrastructure will be required in coming years.

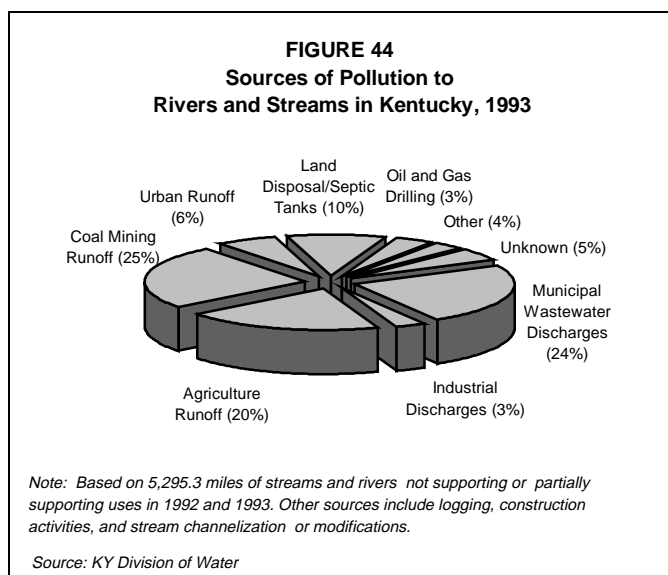


Sustaining our economy and quality of life will require clean and adequate supplies of water. An estimated 89,431 miles of streams and rivers, hundreds of lakes, and vast reserves of underground aquifers provide Kentuckians with abundant supplies of water that support public drinking water systems, supplies to business and industry, and recreational activities. Over the past two decades, state efforts to clean waterways and control pollution from industries and wastewater treatment plants have led to significant improvements in water quality. As illustrated, monitoring by the Division of Water, which currently regulates

9,297 permitted water discharges,¹ of streams and rivers in Kentucky reveals that the percent of miles impaired by pollution has declined steadily.

Federal and state investments to upgrade wastewater treatment plants in Kentucky, totaling \$670 million since 1974, have also helped improve water quality, but significant infrastructure needs remain unmet. At present, 245 municipal and 1,833 smaller wastewater treatment plants operate in the state. Smaller treatment plants have been identified as major polluters — contributing much of the disease-causing bacteria from inadequately treated sewage. High bacterial levels have been found in many waterways, making some streams and rivers unfit for swimming.² Rebuilding and maintaining wastewater infrastructure in Kentucky will require considerable attention and investment. The state wastewater revolving loan fund, created in 1989 and funded in part with federal dollars, has committed \$213 million to upgrading treatment plants. However, an estimated \$1.5 billion is still needed to address immediate wastewater treatment plant problems and another \$2.3 billion will be required to bring these plants into compliance with water quality standards through the year 2012.

Toxic discharges from industries and municipal wastewater plants also have been brought under better control over the past several years. Programs at 71 municipal wastewater treatment plants require 607 industries to pretreat their wastewater to remove chemical substances prior to discharging to a treatment plant. Industrial toxic discharges



to surface waters have also declined — from 791,000 pounds in 1990 to 544,000 pounds in 1992.³ While this is encouraging news, the effects of toxic pollution continue to mount. Fish consumption advisories remain in effect along 859 miles of streams and rivers, five ponds and one lake in Kentucky due to the bioaccumulation of toxic chemicals such as mercury and PCBs in fish tissue.

The most significant impact to our waterways today, however, is polluted runoff, also known as nonpoint source pollution. Polluted runoff, which comes from many sources, including livestock yards, croplands, coal mines, and urban areas, is widespread, impacting water resources in every county of the Commonwealth, according to the Division of Water's *1994 Kentucky Report to Congress on Water Quality*. Voluntary measures such as the use of conservation tillage on 67 percent

¹ Kentucky Pollution Discharge Elimination System (KPDES) permits are required for any discrete industrial and municipal point source discharge into the waters of the Commonwealth. These permits regulate discharges from wastewater treatment plants, industries, stormwater sewers, coal mines, and non-coal mine sources.

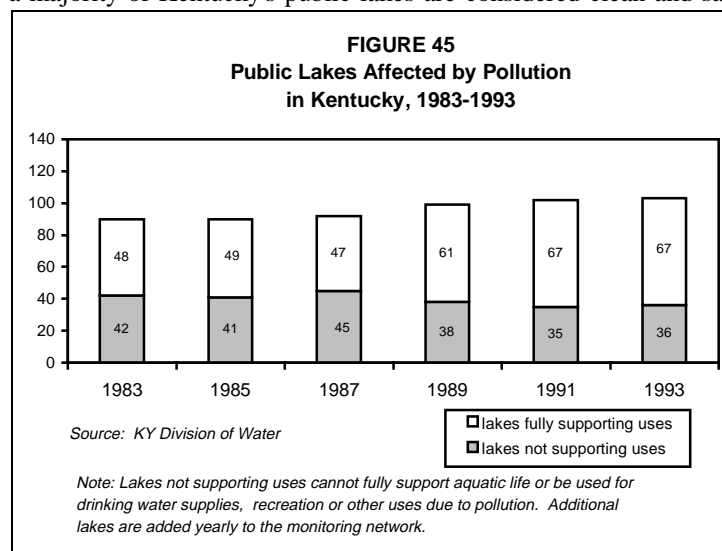
² Swimming advisories were issued by the Kentucky Division of Water for 190 miles of streams and rivers in 1991 and 1992 and 114 miles in 1993 due to high bacteria levels.

³ These data include toxic releases to streams by certain manufacturing companies, as reported under SARA Title III. They do not include releases such as spills and transfers to or discharges from wastewater treatment plants.

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of the state's 3.8 million acres of cropland and the retirement of thousands of acres of erodible farmlands from use have assisted in reducing agriculture runoff pollution. State laws passed in 1994 to provide farmers with cost-share funds and to establish an Agriculture Water Quality Authority to address runoff pollution should also prove beneficial. However, it will take a continuing state effort to fully address and remedy this problem.

The lakes of Kentucky serve as important resources for many communities, as sources of drinking water and as recreational attractions that help support local economies. While a majority of Kentucky's public lakes are considered clean and safe for all uses, 35 per-



cent of the 103 public lakes monitored by the Division of Water cannot be fully used for swimming, fishing, or as a drinking water supply.

Polluted runoff from farms and septic tanks is among the leading sources of lake pollution in the Commonwealth.

The state also permits 105 direct industrial and

municipal wastewater treatment plant discharges to lakes. At present, no specific water quality criteria are in place to protect recreational or other lake uses in the state, although the issue continues to be debated.⁴ The Division of Water currently uses a site-specific approach to lake protection. The Kentucky General Assembly passed legislation in 1984 to protect one public lake — Taylorsville — prohibiting all direct discharges into the lake.

Underground aquifers provide a source of water for drinking and industrial use; however, the quality of Kentucky's groundwater is uncertain, due to a lack of data. Incidents of groundwater contamination reveal threats to quality that extend statewide.⁵ Sources of groundwater pollution include malfunctioning septic tanks, spills, old landfills and dumps, agricultural chemicals, and leaking underground petroleum storage tanks.

At present, Kentucky does not have a comprehensive program to monitor or protect its groundwater resources. In 1993, a consensus group, convened by the Natural Resources and Environmental Protection Cabinet, recommended the development of plans to prevent groundwater pollution from industrial and agricultural sources. State regulations to require groundwater protection plans have since been enacted; however, some have argued that these plans are not sufficient to fully address groundwater protection needs in the Commonwealth.

⁴ The Water Quality Standards Triennial Review Panel and the Kentucky Division of Water are assessing lake protection standards as part of the 1993-94 triennial review of water quality standards.

⁵ University of Kentucky water well surveys, the Kentucky Geological Survey groundwater repository, Kentucky Division of Waste Management groundwater monitoring reports at landfills, hazardous waste facilities, state Superfund sites, leaking underground storage tanks, and Kentucky Department of Health water well tests reveal various levels of groundwater contamination throughout the Commonwealth.

PUBLIC DRINKING WATER

Half a million Kentuckians do not have access to public drinking water systems.

Without doubt, the quality of Kentucky's and the nation's drinking water has improved since the enactment of the federal Safe Drinking Water Act of 1974. For the most part, water treated by public systems and piped to homes, schools, and businesses is considered safe. However, the recent outbreak of *Cryptosporidium*, a tiny parasite found in Milwaukee's public drinking water which killed between 100 and 105 people and caused 403,000 others to become ill after drinking tap water, has heightened public concern and, increasingly, trained the attention of health and environmental officials on the safety of our drinking water.

TABLE 7 Kentucky's Public Drinking Water Systems w/Violations, 1993			
Facility Size	Number of Systems	Number of Systems w/Violations	Number of Violations (% Total)
<101	198	123	660 (49%)
101-500	179	83	292 (22%)
501-1,000	60	19	77 (6%)
1,001-2,500	122	51	78 (6%)
2,501-3,300	55	35	91 (7%)
3,301-5,000	53	21	39 (3%)
5,001-10,000	82	37	76 (6%)
10,001-50,000	61	22	31 (2%)
50,001-75,000	2	2	2 (<1%)
>100,000	3	0	0
Total	815	393	1,346
* Includes all public drinking water systems (community, non-community, and non-transient). ** Includes all drinking water violations (1993 calendar year). *** Estimate based on calculations of 3.3 persons per service connection. Source: Kentucky Division of Water			

Approximately 80 percent of Kentucky's population has access to drinking water treated by public systems, according to U.S. Census Bureau data. Three-fourths of these systems draw their water from rivers, lakes, and reservoirs. The remaining segment of the population relies on private wells, cisterns or other sources for drinking water. Public water systems serving communities are currently required to monitor and treat for 85 contaminants. The most frequent violators of drinking water regulations in Kentucky are the 377 public water systems

which serve 500 or fewer people. In 1993, these systems, many of which cannot afford to improve technology or hire full-time personnel, accounted for 71 percent of the violations cited by the state. During 1993, an estimated 1.5 million Kentuckians were served by public drinking water systems with violations.⁶

Half a million Kentuckians depend on private water wells and cisterns for their drinking water. Since 1984, more than 18,000 domestic water wells have been drilled in the state, according to state water well records. Generally, private water wells are not tested for contaminants except at the time they are drilled. Last year, local health officials tested 1,020 private water wells by request. The tests revealed that 47 percent of the wells had unsafe levels of bacteria. Voluntary tests of 4,859 drinking water wells in rural areas of the state over the past few years also revealed detectable levels of various agricultural chemicals such as nitrates and atrazine in well water. However, relatively few of these samples exceeded the standards or action levels set to protect public health, according to a 1993 Kentucky Geological Survey report.

⁶ The 1,346 drinking water system violations cited by the Kentucky Division of Water during 1993 include monthly operating reports (31 percent), monitoring/reporting (55 percent), MCL standard violations (8 percent), and copper/lead monitoring (5 percent).

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Planning for drinking water needs and protecting water supplies are vital to ensure adequate and clean water for present and future use. All counties are now in the process of developing long-range water supply plans as required by state law. However, most communities do not have comprehensive plans to protect sources of drinking water from contamination. Only 25 of the 165 public water systems that depend on groundwater for drinking have developed wellhead protection plans.⁷ In addition to protecting supplies, many drinking water systems, especially smaller ones, will require financial and technical assistance to comply with an increasing number of standards and more sophisticated water treatment requirements. Extending safe public water to all Kentuckians will require additional resources, as state and federal funds for improvements have been limited.⁸

Interest is growing at the federal level in establishing revolving loan programs, similar to those created to finance sewage treatment plants, to help states fund drinking water infrastructure. A thorough assessment of drinking water systems is needed to determine the current level of treatment, viability, consolidation needs, and the capital required to adequately upgrade, expand, and maintain public drinking water infrastructure in Kentucky.

TARGETING SOURCES OF WATER POLLUTION

New approaches to managing pollution focus on the source, rather than the outcome of water pollution.

Strong, consistent, and targeted enforcement of environmental regulations, which has enabled Kentucky to make real gains in the restoration of its water resources, is critical to maintaining the progress that has been achieved. New initiatives, however, will also be necessary to address remaining water pollution problems. Likely to be prominent among new initiatives is watershed management, which has received significant attention at the national level, as Congress debates the reauthorization of the federal Clean Water Act. Several states have begun to address water pollution problems by watershed, the area from which water drains into a stream, lake, or other body of water. Watershed management focuses on potential pollution within a drainage basin.

The Kentucky Division of Water has undertaken a watershed approach in the North Fork of the Kentucky River where high levels of bacteria have led to swimming bans for the past four years. Poorly operated wastewater treatment plants and direct discharges of untreated household sewage to creeks were identified as major problems in the watershed. A strategy is now being developed to address these and other pollution sources in the North Fork.

With 13 major river basins, each with its own specific pollution problems, addressing pollution problems by watershed is a logical approach for Kentucky to take. Efforts to educate and involve communities as partners in the protection of local water resources are also vital to enhancing water quality. The Community Stream and River Grant Program, funded by the Kentucky Legislature in 1992 and again in 1994, is an innovative approach seeking cooperative state/local solutions to difficult water quality problems.

⁷ Under the federal Safe Drinking Water Act, wellhead protection plans and state regulations for all public drinking water systems utilizing groundwater are required by 1998.

⁸ Sources of grant funds include the U.S. Department of Agriculture, Farmers Home Administration; Community Development block grants; the U.S. Department of Commerce, Economic Development Administration; the Appalachian Regional Commission; and the Abandoned Mine Land Fund. Low-interest loans are available from the Kentucky Infrastructure Authority and the Farmers Home Administration. In 1992 and 1993 a total of \$58 million in grants and \$110 million in loans were committed from these sources to drinking water projects.

In addition to controlling water pollution, measures to prevent pollution altogether are receiving increased attention. Pollution prevention, which is based on the premise that it is less costly and more environmentally sound to eliminate pollution rather than mediate its impact, has become a national priority. Several businesses in Kentucky, including Westvaco, General Electric Appliances and Ashland Oil, have committed to reducing the production of priority toxic pollutants under the U.S. Environmental Protection Agency's Voluntary Toxics Reduction Program. Additionally, the Kentucky Environmental Leadership Act, passed by the General Assembly in 1994, calls for a 25 percent reduction of toxic pollution released by large manufacturing companies by the year 1997 and a 50 percent decrease by the year 2002. The effectiveness of the law, however, will hinge on the private sector's commitment to pollution prevention and the adequate monitoring of results. Efforts to educate the public are also crucial to minimizing or preventing pollution.

AIR QUALITY

When fully enforced, the federal Clean Air Act Amendments of 1990 are expected to dramatically reduce air pollution.

Kentucky's air quality has improved dramatically since the enactment of the federal Clean Air Act in 1970. The provisions of the act have led to significant reductions in levels of harmful pollutants, such as lead and carbon monoxide, but the state has not fully complied with the law, failing to achieve ozone and other air quality standards over the years. In addition, complex issues such as acid rain and air toxics were not fully addressed by the 1970 act. In response, Congress passed the Clean Air Act Amendments of 1990, the goal of which is to reduce air pollutants by 56 billion pounds a year. The act focuses on the following pollutants:

- urban smog or ground-level ozone pollution, produced by vehicles and factories;
- sulfur dioxide and nitrogen oxide emissions from power plants; and,
- hundreds of air toxics associated with cancer and other health risks.

The Division of Air Quality and the Jefferson County Air Pollution Control District are responsible for implementing the provisions of the act in Kentucky. At present, there are more than 3,000 regulated air pollution sources in Kentucky. Nearly 300 of these sources are considered major sources of pollution, emitting 100 tons of various air pollutants each year. Many regulated sources will pay increased permit fees, as authorized under the act, to assist the state in implementing the law's new provisions. The Division for Air Quality expects to collect permit fees of \$5.5 million in 1995 and \$6.6 million in 1996. Under the act, Kentucky, like other states, also must institute more rigorous controls to meet the ground-level ozone standard. Ozone or smog, which is formed when solvent fumes and gasoline vapors react in the air with sunlight, can cause or aggravate respiratory problems.

Currently, eight counties in Kentucky are classified as "moderate nonattainment" for failing to meet the health-based air quality standard for ozone. These areas include Jefferson County and portions of Bullitt and Oldham Counties. Boyd and Greenup and the Northern Kentucky counties of Boone, Campbell and Kenton are also designated as nonattainment for ozone; however, the Division for Air Quality has filed a request with the U.S. EPA to reclassify these counties to attainment since no ozone violations have been documented in the past three years.

Nonattainment counties will have until November 1996 to reduce smog forming emissions of volatile organic compounds (VOCs) 15 percent below 1990 levels. In addition,

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they must bring levels of ozone to within federal standards and show through computer models that the ozone standard will be met for at least 12 years. Failure to meet these requirements could result in federal sanctions, such as withholding of transportation funds to nonattainment counties.

Kentucky's coal-fired power plants will also be affected by the Clean Air Act Amendments of 1990. The law calls for major reductions in sulfur dioxide (SO₂) emissions, a pollutant linked to the formation of acid rain, by the turn of the century. Nationwide, the act is expected to result in about a 40 percent reduction of SO₂ emissions from 1980 levels. The two-phase reduction program will affect all of Kentucky's coal-fired power plants, which currently account for 85 percent to 90 percent of all SO₂ emissions in the state.

To meet the act's requirements, utilities will have the option of installing pollution control equipment, such as scrubbers, to reduce SO₂ emissions; switching to low-sulfur fuel; or trading emission allowances with other plants. In Kentucky, most power plants

affected by the first phase of SO₂ reduction requirements have opted to install scrubbers and continue to use a combination of low- and high-sulfur coal. Nationally, of the 261 generating units affected by the first phase of the program, 162 have changed to low-sulfur fuels and 27 have installed new scrubbers, according to the Federal Energy Information Administration. The national trend toward fuel switching by power plants has concerned the coal industry in western Kentucky where coal is high in sulfur content. However, demand is expected to increase for low-sulfur coal mined in eastern Kentucky. Experts anticipate electric rates will increase more than 4 percent in the state by the year 2004 due to the costs associated with reducing SO₂ emissions.

Toxic air emissions from businesses and industries will receive greater attention in Kentucky during the next several years. To date, the U.S. EPA has established standards for eight toxic air pollutants;

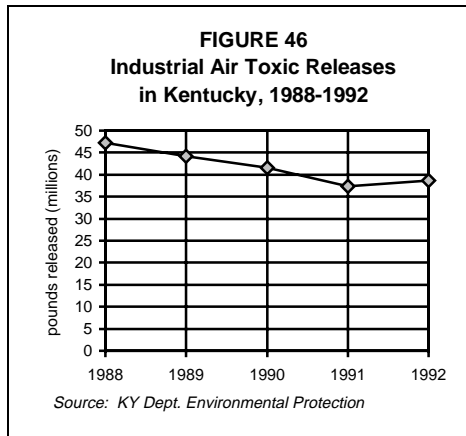
TABLE 8 Sulfur Dioxide Emissions (tons) from Kentucky Power Plants			
County	Facility	1980	1993
McCracken	TVA-Shawnee	86,961	44,431
Muhlenburg	KU-Green River	13,529	15,362
Muhlenburg	TVA-Paradise	372,654	75,040
Ohio	Big Rivers -Wilson	NO	7,695
Daviess	MU Elmer Smith	45,159	69,855
Hancock	Big Rivers -Coleman	78,650	58,793
Henderson	Henderson Municipal	1,526	1,638
Webster	Big Rivers -Reid	53,443	30,547
Webster	Big Rivers -Green	7,618	7,569
Boone	Cincinnati G& E	NO	14,929
Carroll	KU-Ghent	84,553	117,036
Bell	KU -Pineville	467	56
Clark	E. KY -Dale	3,929	6819
Fayette	KU*	5	5
Mercer	KU -Brown Station	53,153	42,177
Woodford	KU -Tyrone	1,081	862
Lawrence	KY Power-Big Sandy	61,617	55,032
Mason	E. KY.-Spurlock	NA	43,258
Pulaski	K. KY Power.-Cooper	12,743	21,631
Jefferson	LG&E-Mill Creek	107,491	35,054
Jefferson	LG&E-Cane Run	32,904	6,798
Trimble	LG&E-Trimble Co.	NO	12,411
Note: Figures shown were rounded to the nearest ton. * Not coal-fired. NO -- not operating NA -- data not available Source: KY Division for Air Quality, Jefferson County Air Pollution Control District, Louisville Gas and Electric, 1994			

however, the new Clean Air law requires standards to be set for 189 toxic air pollutants over the next 10 years. These standards will affect every major industry in the state, from mining to manufacturing. While the state has regulated air toxics for several years, few facilities have been required to reduce toxic air emissions as a result of the program.

Among those industries which are required to report emissions to the state, the amount of toxics has declined somewhat since 1990.

While the impact of the Clean Air Act Amendments in Kentucky cannot be fully determined at this time, it is certain that the act will be a major force in reducing air pollution by redefining the regulatory framework for industries and businesses. Many will need technical assistance in meeting the act's requirements, a need the act addresses with the opportunity to establish a center to assist small businesses in complying with the law. It is important that the center also establish partnerships with local and statewide economic development agencies to meet the needs of new and existing businesses.

Nationally, it is estimated that compliance with the Clean Air Act Amendments will cost \$12 billion per year by 1995 — and \$25 billion per year when fully implemented in the year 2005, according to the U.S. EPA. To counter costs, as well as reduce air pollution



emitted from burning fossil fuels such as coal and petroleum, Kentucky must renew its efforts to promote energy conservation. It has been estimated that 25 percent of the energy we produce is wasted due to over-consumption and inefficiency. Nevertheless, state and federal funds for energy conservation programs have been greatly reduced over the past several years. Federal Energy Conservation appropriations for state programs declined from \$59.9 million in 1982 to \$18.2 million in 1994. Kentucky needs to explore opportunities and design creative, collaborative and appropriate strategies to promote energy conservation in the interest of reduc-

ing short- and long-term costs.

Strong enforcement of state air pollution laws is also crucial to maintaining and achieving additional air quality improvements. During 1993, more than 2,100 air pollution complaints were received by state officials, 700 in Jefferson County alone. During the same year, 969 violations of air pollution laws were cited. The consistent enforcement of air pollution laws and measures to encourage pollution prevention are necessary if Kentucky is to provide all citizens with clean and healthy air to breathe.

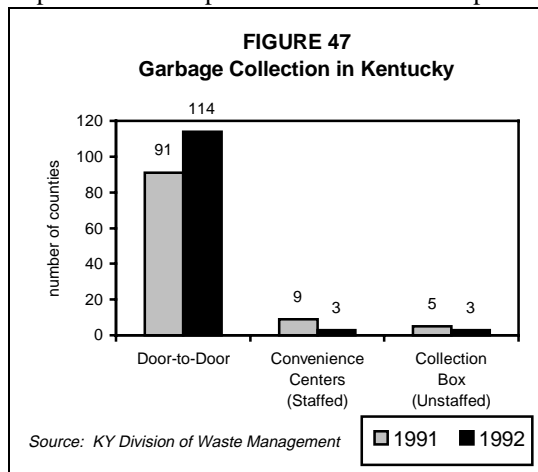
SOLID WASTE

Timely legislation has checked the influx of out-of-state garbage, but management of our own solid waste continues to challenge policymakers at every level.

Managing solid waste remains a top environmental priority in Kentucky. The issue moved to the forefront after the state was targeted by waste firms in the Northeast United States as a cheap alternative for garbage disposal. In response, Kentucky lawmakers passed major reforms in 1991 to address the disposal of long-haul, out-of-state garbage and enacted stricter rules for the construction, operation, and proper closure of solid waste landfills in the state. In addition to closing many leaking landfills, the reforms passed by the General Assembly have curbed the flow of out-of-state garbage into the

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state. Out-of-state garbage has declined from 20 percent of the total amount of solid waste disposed at municipal landfills in 1990 to 5 percent in 1993.



According to landfill reports, Kentuckians disposed of 3.7 million tons of municipal garbage in 1993. New state standards have reduced the number of landfills receiving wastes from 76 in 1991 to 29 in 1994. Of the 29 municipal landfills, five are contained — meaning they meet the standards required to stay open past 1995. The remaining landfills must upgrade or face closure by 1995.

Groundwater monitoring at the 29 municipal solid waste landfills has detected contamination problems at 13. Several types of contaminants have been detected, including industrial solvents and heavy metals.

The cleanup of these and another 495 identified old, abandoned or illegal contaminated waste sites (known as state superfund sites) will require additional attention and resources to adequately address the threats posed to public health and the environment.

The challenge of managing our waste safely will continue for many years and make the permitting of new or upgraded landfills a top state priority. Ensuring proper operation of municipal solid waste landfills will be vital as many expand and handle greater quantities of waste. Close monitoring and enforcement of other facilities receiving wastes, including the 36 residual landfills that accept solid wastes generated by industries, 52 construction/demolition landfills, 127 solid waste transfer stations, 56 landfarming operations, 39 composting operations, and 3 special waste landfills, will also be necessary to prevent contamination problems.

Long a difficult problem for rural states, the collection of household garbage has improved in Kentucky over the past few years. All counties now have universal garbage collection ordinances, compared to just seven in 1990; however, only 20 of the ordinances require residents to participate in garbage collection. The remainder permit voluntary participation. While more Kentuckians now have access to door-to-door garbage collection, for which monthly rates range from \$7 to \$14 per household, an estimated 21 percent of the state's population still does not have adequate access to garbage collection, according to 1993 county solid waste annual reports.

As a consequence, illegal dumping continues to pose problems. An estimated 2,500 open dumps identified in county solid waste plans are now in need of cleanup. Many communities are struggling to meet the costs associated with garbage collection and disposal. In order to prevent illegal dumping and spread disposal costs equitably among all Kentuckians, mandatory statewide garbage collection remains an option for policymakers to consider.

In 1991, the state adopted a goal to reduce the weight of wastes received at municipal landfills 25 percent by 1997. The Division of Waste Management is responsible for monitoring progress in meeting this goal. Measuring waste reduction and the amount of materials recycled in the Commonwealth, however, will be difficult. At present, recycling facilities are not required to register with the state, nor are they required to report the amount of recyclables collected. Nevertheless, progress is being made. Kentucky is now

home to 263 used oil collection centers and 179 commercial recyclers which are located throughout the state. And many Kentuckians now have access to drop-off centers for recyclables, although very few communities offer door-to-door collection.

Programs to promote waste reduction and recycling will likely increase as landfill disposal costs rise and more markets for recyclables become available. In the interim, it will be necessary to closely monitor waste reduction and management activities in the state to adequately prioritize and address needs.

FUTURE IMPLICATIONS

Effective management of Kentucky's vast forests is expected to be a top environmental concern in the years to come.

The Commonwealth will confront many environmental challenges in the years ahead, including the reclamation of thousands of acres of abandoned mine lands and the management of our natural resources in a sustainable manner. Other issues will rise and fall on the environmental agenda and continue to generate debate. Prominent among these is likely to be the cost and level of acceptable risk for the cleanup of soil and groundwater contamination from leaking underground storage tanks and other waste sites. Concern regarding new unfunded federal environmental mandates will also continue to be expressed by state officials, as competition for limited state dollars grows.

Kentucky has also entered into an era of intense public interest in its forests. These resources, which cover nearly half of the state's 25.8 million acres of land, are coming under increased harvesting pressure, as demand for wood and paper products rises and the timber resource base shifts from the Pacific Northwest to the South. While resilient, Kentucky's forests are poorly understood. The current method of measuring the sustainability of forests by timber removal and growth does not provide a complete picture of forest health. In response, many are calling for a sustainable forestry strategy that considers all values and uses. However, sound management of Kentucky's forestland will present a significant challenge, as more than 90 percent is in private ownership.

Recent actions by policymakers, however, are expected to advance understanding of our forests and promote conservation. A long overdue public dialogue commenced with the statewide 1994 Forest Summit, which should help move the Commonwealth toward sustaining a healthy forest ecosystem. Likewise, the creation of the Kentucky Forest Products Council by the General Assembly in its 1994 session will institute a long-range and proactive strategy for the state's wood industry to realize its full potential.

Another recent legislative initiative will provide an opportunity for Kentuckians to protect their natural heritage. The Heritage Land Conservation Fund provides, for the first time, a dedicated source of state funds to preserve important wetlands, forests, and other natural areas for future generations. At present, only 28,422 acres of Kentucky land has been set aside and managed as natural areas. Additionally, the establishment of a Biodiversity Task Force will assist in promoting sound programs and policies for conserving our natural resources and avoiding conflicts in the future.

The state has made great strides in acquiring the knowledge needed to improve environmental decisionmaking, but Kentucky will be challenged to maintain and expand its fiscal commitment to data collection, management and reporting, in order to more accurately assess the extent of environmental problems, target efforts to mediate them, and identify cost-saving, effective solutions. Establishing clear environmental priorities based on sound science and risk assessment is a principal goal of the Comparative Risk component of the Kentucky Outlook 2000 Project, which is being conducted by the Cabinet for

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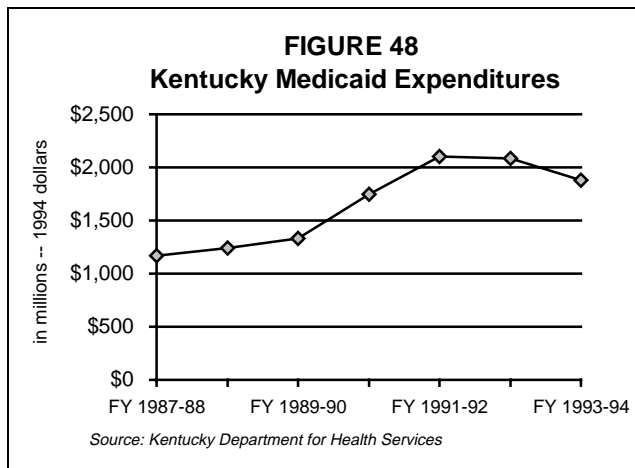
Natural Resources and Environmental Protection. The project, funded by the U.S. EPA, has united representatives of industry, government, the academic community and environmental interests from across the state behind the task of identifying environmental issues and ranking risks. This partnership should help establish consensus around an action agenda that will lead to practical and innovative solutions to environmental problems.

NEW PRESCRIPTIONS FOR HEALTH CARE

There are many benefits of a healthy population. Healthy people enjoy a higher quality of life, they remain economically productive longer, and they live longer. Moreover, business is more competitive and government can devote precious resources to other priorities. Today, in Kentucky and across the nation, remarkable changes in our thinking about health and health care are underway. They are being driven primarily by advancing technology and rapidly rising health care costs, the combined impact of which is likely to propel two major trends in the future of health and health care in Kentucky. Increasingly, the emphasis of health care will shift to health promotion and disease prevention as a means of increasing the accessibility and quality of health care while containing costs. Secondly, a higher level of cooperation among individuals, private service providers and government is expected to emerge. Advanced applications of technology and more active involvement of communities will overarch these trends, as we attempt to create a more manageable, useful and equitable health care system.

ADVANCING TECHNOLOGY AND RISING COSTS

As our population ages, the present crisis in health care costs will only worsen in the absence of system reform.



Communication and information systems are expected to dramatically improve health care through such applications as biological simulation, collaborative decision-making, and access to vast quantities of data. Technology will also affect the way we conceptualize our health care system. What formerly consisted largely of doctors and hospitals for sick people is expected to eventually include a social network of communities, private organizations, governments and new forms of health care providers,

who will focus on building environments that keep people healthy and establishing community-based health promotion programs. Communication technologies will play an important role in integrating the different elements of this effort.

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Change in our present system is made imperative by rapidly rising health care costs. Total expenditures on Medicaid in Kentucky have risen by roughly 60 percent in the last 6 years, and now total nearly \$2 billion annually, according to the Kentucky Department for Health Services. Nationally, it is estimated that about 14 percent of the country's gross national product is spent on health care. Since 1980, the cost of medical care has risen 50 percent faster than the overall rate of inflation. Higher costs combined with increasing numbers of people and services covered by Medicaid have caused expenditures to increase substantially in recent years. This may limit our ability to expand coverage in the future. Rising costs are not only a burden on government coffers, but also on businesses confronting stiff competition and pressures to contain labor costs, and to families attempting to minimize the impact on strained budgets. It is widely agreed that health care costs are becoming a national crisis that will only be compounded by the aging of our population. Elderly people require more health care and often costlier care than do younger people. Increased demand for health care is expected to drive costs even higher. Kentucky may be particularly vulnerable to this trend because its population is aging more rapidly than the nation as a whole.

HEALTH PROMOTION AND DISEASE PREVENTION

By a number of measures, Kentuckians are among the least healthy people in the nation.

Effective primary care — the provision of accountable, comprehensive, continuous, affordable, high-quality care — and preventive and educational services for all Kentuckians offer perhaps the most useful tool for managing preventable illnesses and containing medical care costs. Primary care promotes maternal and infant health, provides immunization against many diseases, reduces the spread of HIV infection and sexually-transmitted diseases, and provides counseling and education for chronic conditions such as cardiovascular disease, cancer and diabetes before they require more expensive medical intervention, such as services from physician specialists and acute care hospitals. In short, effective primary care is the ounce of prevention which spares us the costly pound of cure.

One of the most exciting recent developments in primary care in Kentucky is the awarding of a three-year grant from the Robert Wood Johnson Foundation to implement a program designed to improve the distribution of primary care providers in underserved rural and inner-city communities. Kentucky was one of only 10 states (out of 44 which applied) to receive the three-year grant. At the same time, primary care is also garnering more attention from medical schools. The University of Kentucky recently held Primary Care Day to encourage more medical students to become generalist physicians. Students at other medical schools around the country are staging similar events as the health care community trains its focus more acutely on cost containment.

Infant immunization in Kentucky offers an important primary care success story that is expected to yield inestimable savings in years to come. Largely because of widening gaps in provisions and the costly consequences of avoidable, debilitating disease, infant immunization has received increased attention. In 1991, only 50 percent of all Kentucky infants younger than 24 months were immunized. Beginning in 1992, the federal government began funding the state through its immunization action plan (IAP), which provided money for local health departments to hire full- or part-time nurses to give immunizations. These nurses are involved in community-based education, promotion and incentive programs to increase infant immuni-

zations. Approximately \$1 million in IAP funds are spent in Kentucky each year. In just three years, the percentage of immunized infants under 24 months has risen to 70 percent.

In spite of gains such as these, Kentucky has a long way to go to improve access to primary care across the state. The Department for Health Services estimates that Kentucky currently has 46 counties with a probable or definite deficiency of primary care physicians (less than one physician for every 3,000 people). Additionally, 14 areas in other counties have a deficiency of primary care physicians. As the case of infant immunization illustrates, the demand for more primary care exists, and efforts to meet that demand through providers, primary care centers and improved service will reap rewards.

Closely related to primary care is health education and the promotion of healthy lifestyles. Unfortunately, Kentucky fares poorly in several measures of healthy lifestyles. Among 48 participating states and the District of Columbia in a Center for Disease Control annual survey, Kentucky ranks second in the percentage of people who have been told they have high blood pressure, second in percentage of people who have never had their cholesterol checked, third in percentage of people who are regular smokers, fourth in percentage of people with a sedentary lifestyle, and eighth in percentage of people who are overweight.

TABLE 9			
Health Risk Factors, Kentucky and the US*			
Risk Factor	Range (%) of All States	KY (%)	Rank
Hypertension	14.7-27.9	25.3	2
Cholesterol Never Checked	26.3-40.6	39.2	2
Smoking	15.6-30.5	27.9	3
Sedentary Lifestyle	46.2-82.1	67.2	4
Obesity	17.3-29.7	27.3	8
* Includes 48 States and District of Columbia			
Source: Centers for Disease Control			

These problems offer communities and citizen groups ample opportunities for participation in the health care system of the future through health promotion. Community coalitions, such as the Gateway Health Coalition and the Louisville Wellness Forum, have been formed to address health concerns in

their respective communities. These coalitions foster a sense of local ownership of and responsibility for health promotion and disease prevention programs (Department for Health Services). Across the state, the Core Health Education Program funds health education efforts which local health departments and their communities deem most appropriate for their area. Such community involvement in state and federal initiatives is becoming increasingly common.

A likely development on the horizon for health education and promotion in Kentucky is comprehensive school health education for kindergarten through 12th grade. Under such a program, children would receive age-appropriate instruction covering many health issues throughout their school years and be repeatedly exposed to important health information. School health services, such as health appraisals and follow up, screening, health and psychological counseling, communicable disease control and first-aid emergency care, would be an integral part of the strategy, according to the Department for Health Services. The program would provide a critical foundation for the promotion of healthier lifestyles among Kentucky's future generations, from which the state would be expected to realize significant long-term benefits.

Another element of health promotion and disease prevention is environmental improvement. The good news is that our air and water are relatively clean compared to other parts of the country. Where problems do exist, communities and the private sector have been closely involved with the state and federal government in efforts to reduce or eliminate environmental health risks. Areas which are not in compliance with federal air quality standards must develop a plan and a timetable to achieve compliance. Community input is often solicited in develop-

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ing the plans, particularly when they involve widespread citizen participation, such as automobile inspection and maintenance programs to reduce ozone. Communities have even taken the initiative in cleaning up some environmental health risks. Jefferson County, for example, recently approved a bond issue to clean sewage from a lake after the federal government denied funding for the project. Private companies with conscientious management have also acted responsibly towards their communities. Some mining companies, for example, have moved well beyond federal requirements in improving reclaimed lands and fostering plant and animal wildlife.

Primary care, health education and environmental health will be critical elements of any system designed to keep Kentuckians healthy and productive. While many signs indicate a reorientation of our present system towards health promotion and preventive care, the state has significant opportunity to expedite this process. Already, the Department for Health Services and local health departments are engaged in a major effort to reach goals outlined in the Healthy People 2000 project. This project places heavy emphasis on health promotion and disease prevention based on federal standards. The state can supplement this effort by aggressively supporting the development of a better system of primary care facilities and physicians. The development of local and regional citizen groups which would assume more responsibilities for planning and managing health care in their areas offers another important avenue for change. Measures such as these will help nurture the positive trends in health and health care in Kentucky to fruition.

COOPERATION AND COORDINATION

Reform of our health care system is likely to be a continuous process in the years to come, the success of which will hinge on cooperation.

Developments in health promotion and preventive medicine have often been the result of coordinated efforts of many different elements of the public and private sectors. For example, the Robert Wood Johnson Foundation, a national philanthropy devoted to health care, is promoting primary care in underserved areas while medical students at the University of Kentucky are encouraging their peers to become primary care practitioners. Meanwhile, citizen forums and local health departments are informing state government about the health education needs of their areas, and voters in Jefferson County have assumed responsibility for the cleanup of a polluted lake. These examples offer a glimpse of health care's future.

The role of government will continue to be significant in the future of health care. Today, the state and the nation are engaged in the difficult, arduous task of determining exactly what role government will assume. Debate has often been acrimonious and protest loud from groups and individuals who see themselves as losers in the early proposals for reform. As a result, reform has been slow to start and in some cases, completely blocked. Ultimately, however, it is likely that a new model of public-private partnership will be created and endorsed by the health care community.

Kentucky has made a significant effort to build the foundation for this new partnership with the passage of a major health care reform bill (HB 250), which was signed into law in April 1994. The bill addresses two key issues — cost and availability — through a number of provisions, including the establishment of a potentially powerful Health Policy Board, the creation of the Health Purchasing Alliance, which will provide health care coverage to thousands of Kentuckians, and the reform of private health insurance and Medicaid. The law does

not achieve universal coverage, nor does it give the Board the authority to set rates. Rather, the law relies on market competition to drive the system, albeit with a more active role for state government in guaranteeing coverage.

The reforms have produced concerns within the health care community, but such problems predictably accompany the dramatic changes which have taken place in Kentucky. At the same time, though, important examples of new approaches to health care through greater cooperation and coordination are emerging. Alliant Health System and Baptist Healthcare System, for example, two non-profit hospital companies, announced plans for a joint venture in September 1994 that will provide comprehensive statewide health care services and sell health plans with market incentives to encourage providers to keep costs low. Physicians will have the opportunity to become owners in the new joint venture (Song).

The Alliant-Baptist joint venture is a harbinger of things to come. Health alliances which provide managed care are expected to become more commonplace in Kentucky, particularly now that the health care reform bill has been passed. In many managed care systems, a network of approved providers cares for individuals at capitated rates, so providers have incentives to keep costs down. Managed care also has the advantage of lower administrative costs than fee-for-service health care. As the health care system moves towards managed care and away from fee-for-service financing schemes, new issues may emerge or become more important. For example, limitations on providers may present problems for those who need the care of specialists. Also, some providers dislike the peer review, careful screening of their practices, and limitations in treatment they can provide that managed care may impose. Finally, provider inclusion into managed care alliances may pose problems, as some providers may lose a significant number of patients if, for example, they work in a small area but are not included in a service network. Insurance companies, on the other hand, may not want to include every willing provider, as stipulated in HB 250.

As we have already seen with the passage of health care reform and the new issues, concerns and practices it has generated, the process of restructuring the health care system and redefining the roles of various members of the health care community is dynamic. We will never fully finish the task. Conflicts will generate new ideas, new practices, and new solutions to old problems. The guiding principles of conflict resolution, in health care or in any other field, include cooperation and the sharing of responsibilities and burdens. As communities and individuals assume more responsibility for their own health, state policymakers and others in the health care community must build upon local efforts and initiatives to make Kentucky's health care system more affordable, accessible, inclusive, effective and efficient.

FUTURE IMPLICATIONS

Health deficits in Kentucky present opportunities, as well as potential problems.

The average Kentuckian today is not as healthy as the average U.S. citizen. Kentuckians are more likely to die from heart disease, cancer, stroke, or respiratory problems. The state has other problems as well. In 1989, for example, one-quarter of all pregnant women did not receive prenatal care in the first trimester of pregnancy. It is estimated that of the more than 188,000 Kentuckians with diabetes, only half have been diagnosed, according to the Department for Health Services. And the Centers for Disease Control report that only Mississippi has a lower percentage of women over the age of 50 who have had a mammogram within the past two years. Many Kentuckians have unhealthy lifestyles which raise the risk of illness and high

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medical expenses. We might conclude from these data that the health of Kentuckians and the burden on the state's health care system do not face a bright future. Not necessarily. The nature and magnitude of these problems offer significant opportunity to build a healthier society and, in the process, mediate rising health care costs.

Providing pre- and post-natal care for low-income women, managing sewage treatment, changing behavior through health education and developing the state's primary care system are but a few of the many opportunities Kentucky has to improve the health of its citizens at a relatively low cost. The tactics for addressing our many opportunities will focus on preventing or delaying illness through health promotion and disease prevention. The strategy must be a shared commitment by the entire health care community to the imperative of building a healthier society.

A child is a person who is going to carry on what you have started . . . sit where you are sitting , and when you are gone, attend to those things which you think are important. You may adopt all the policies you please, but how they are carried out depends on him. He will assume control of your cities, states, and nation . . .
The fate of humanity is in his hands."

Abraham Lincoln

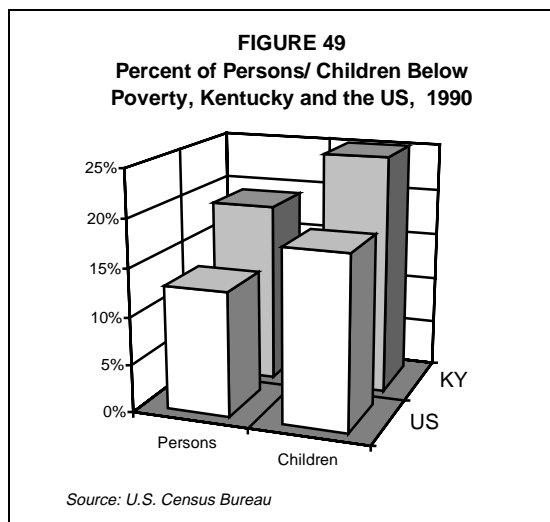
A FUTURE IMPERILED BY POVERTY

From one-fourth to nearly one-half of Kentucky's children live in poverty, which, research consistently shows, can and does ruin lives.

As suggested by Professor Stephan M. Wilson, Director of the University of Kentucky's Research Center for Families and Children, children are the "common wealth" of our state and our nation, the irreplaceable resource on which the future depends. The extent to which we provide for them, nurture them and enrich their lives will in no small measure determine our progress and prosperity in the years to come. Yet estimates of the extent of poverty among children in our state tell us that, when it comes to this essential foundation for the future, we are failing. Instead, all of the considerable, well-intended work that has been done to mediate the pain and discomfort of poverty in Kentucky has not loosened its stranglehold on the children who are the future of this state.

Today, families are under extraordinary stress that is being felt in the everyday lives of children from every economic strata, but far more acutely in the lives of those who are poor. A growing number of children are absorbing the shock of family disruption and settling into households headed by single parents, who, Harvard Professor Lisbeth Schorr suggests in *Within Our Reach*, are often "too drained to provide the consistent nurturance, structure and stimulation that prepares other children for school and for life (Schorr)." In disproportionate numbers, they are also too poor to meet their children's needs.

Structural economic and family changes have combined to push one in five U.S. children into what the U.S. Bureau of Census defines as poverty. Some social science researchers believe it is outdated and inaccurate, and grossly underestimates the real scope of the problem. By current federal estimates, the line of poverty is presently drawn at a monthly income of \$932 for a single mother with two children and at \$1,195 for a family of four. The Kentucky Kids Count Consortium, however, estimates that families actually need incomes double the federal poverty threshold in order to meet basic housing, clothing, health care, food and transportation needs. Thus, many families have one or more adults who work full-time but still struggle; they are the working poor.



Even by official definitions, *one in four* Kentucky children is poor. In 22 rural Kentucky counties, 40 percent or more of children live in official poverty. The Kentucky Kids Count Consortium, which includes state university researchers and child advocates, estimates that nearly one-half (48 percent) of children in the state are members of families who are unable to provide a minimal standard of living.

The alarm poverty raises is not new to the public policy dialogue in Kentucky. In the mid-1940s the Committee for Kentucky expressed concern about poverty's implications for the state's future. Forty years later in 1986, the Kentucky Tomorrow Commission echoed those same concerns, urging in-

vestment in programs to alleviate the causes and consequences of poverty.

As we near the end of this century, poverty has not been defeated or diminished. Instead, it has tightened its stranglehold on Kentucky families and expanded its geographic reach. Once regarded as largely an Appalachian problem, poverty became a way of life for more and more western Kentucky families during the 1980s. For example, the number of children living in poor families nearly doubled in Caldwell County while it increased 53 percent in Marshall County, 37 percent in Daviess County, and 26 percent in McCracken County. Inner-city neighborhoods in Lexington and Louisville were similarly affected by the decade-long growth of child poverty.

Today, the body of research into poverty has begun to expand in proportion to the magnitude of the problem and complement long-established documentation of the relationship between childhood poverty and a range of potentially devastating adult outcomes. The circumstances of life in poverty, researchers consistently conclude, adversely affect the health and the educational attainment of children reared under its mantle and, in turn, the productivity and independence of their adult lives. While researchers are beginning to isolate the factors that enable children from some poor families to escape its mean cycles, it is almost universally agreed that poverty is not benign. "We will all suffer because of children in poverty," observes Dr. Wilson. *In short, deepening child poverty does not bode well for the future of our state and our nation.*

The long-range public interest, more and more researchers assert, will be served by policies and programs that alleviate the effects of poverty and prevent its root causes. Broad-based investment in comprehensive initiatives that have yielded proven results is being urged from a number of fronts. "The national stake in getting services to families most in need is now so large, and the potential for effective help so great, that interventions especially designed for the families hardest to help justify massive new public commitment," Harvard's Professor Schorr has urged.

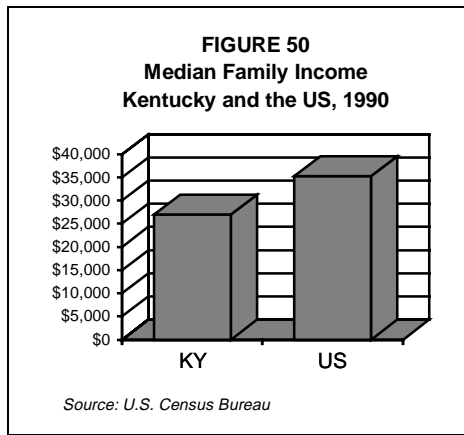
The singular advantage policymakers enjoy today, 30 years after President Lyndon Johnson's symbolic launching of the War on Poverty in Inez, Kentucky, is knowledge. While it may seem now that the war is lost, as more and more human territory has been ceded, many strategies for mediating the damaging consequences of poverty have proven and will continue to prove their worth to public investors. They offer a path to policymakers who are confronted

with the need to invest in prevention at a time when the cost of failure is consuming bigger pieces of state budget pies.

WHY FAMILIES ARE POOR

Stagnant wages and a rising number of single-parent households, usually headed by women, have extended poverty's reach.

The underlying causes of poverty among families with children are both economic and structural. As family households have divided, so too have resources. Too often, children are the economic losers, but even two-parent families have suffered economic setbacks in recent

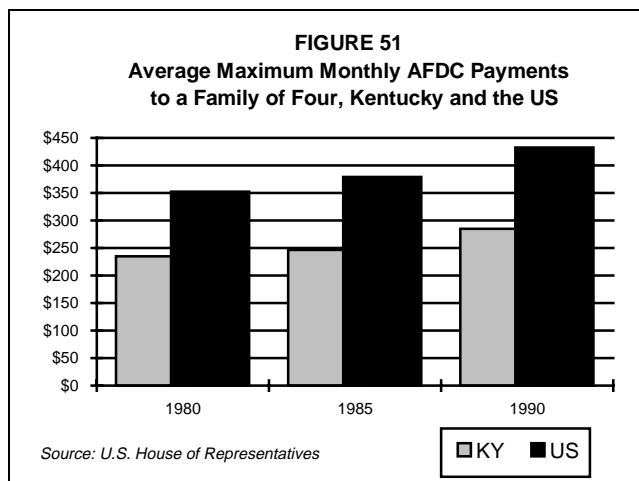


years. The average family's take-home pay (inflation-adjusted wages) has not kept pace with inflation since 1974, and an estimated 6.6 million U.S. workers live in families who are poor.

The plight of young U.S. families with children, those headed by persons younger than 30, has worsened dramatically, according to a 1992 report by the Children's Defense Fund (CDF). Between 1943 and 1990, CDF found the median income (adjusted for inflation) of young families was reduced by nearly one-third -- 32 percent -- while it rose 11 percent among families without children. At the same time, the poverty rate for children in young families doubled, from 20 percent in 1943 to 40 percent in 1990.

In Kentucky, the overall picture is made worse by a median family income that lags far behind that for the nation as a whole. As illustrated, while the median family income in the United States is now \$35,225 a year, it is *more than \$8,000 a year lower* for Kentucky families (\$27,028), a gap that widened from 83 percent of the national median income in 1980 to 77 percent in 1990. Lower incomes, increasingly reliant on transfer payments from government assistance programs, are a significant reason for the expanse of poverty in the state. As Dr. Hansen observes, "Many young parents have difficulty finding decent-paying jobs. There are fewer high-wage manufacturing and mining jobs and more low-paying service and retail jobs today."

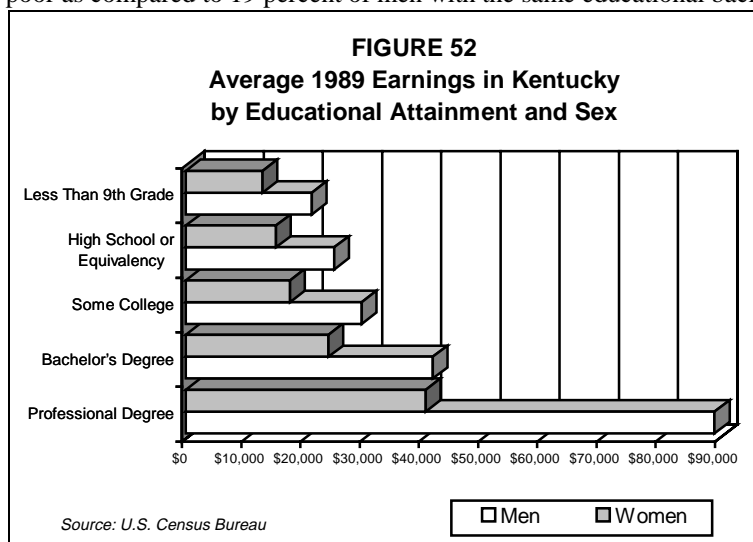
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While two-parent families struggle to make it on declining wages, children who live in single-parent households are six times as likely to be poor, largely because most live in households headed by women who earn less, receive little or no support from the absent parent, or receive too little public assistance to escape poverty. In Kentucky, public assistance clearly does not permit recipients to escape poverty. In 1990, the maximum AFDC monthly payment to a family of four was 34 percent lower than the national average, \$285 in contrast to \$432.

As illustrated, the disparity persisted throughout the 1980s. AFDC benefits in Kentucky meet only 73 percent of the need poor families experience, according to Kentucky Youth Advocates. In spite of the need evidenced in expanding rolls, up by nearly 17,465 families from 1981 to 1993, the state's inflation-adjusted funding for AFDC has risen only slightly in the 1990s.

Underlying the changing economic circumstances of families with children are persistent racial and gender inequities in pay and employment opportunities that are sharply felt by single women, as well as by two-parent families. In its annual report on poverty, the Census Bureau reported in 1991 that, regardless of educational achievement, more women lived in poverty. Among those women without a high school diploma, for example, 30.7 percent were poor as compared to 19 percent of men with the same educational background.



A 1991 report for the Workforce Development Cabinet found that, regardless of age or years of education, women in Kentucky continue to earn substantially less than men, 62.7 cents on average for each dollar earned by men. Census data, however, suggest that this figure may actually underestimate the disparity. As illustrated, data on educational attainment reveal a dramatic difference in the earnings of men and women in Kentucky that, contrary to usual assumptions, widens with educational achievement. And while women have

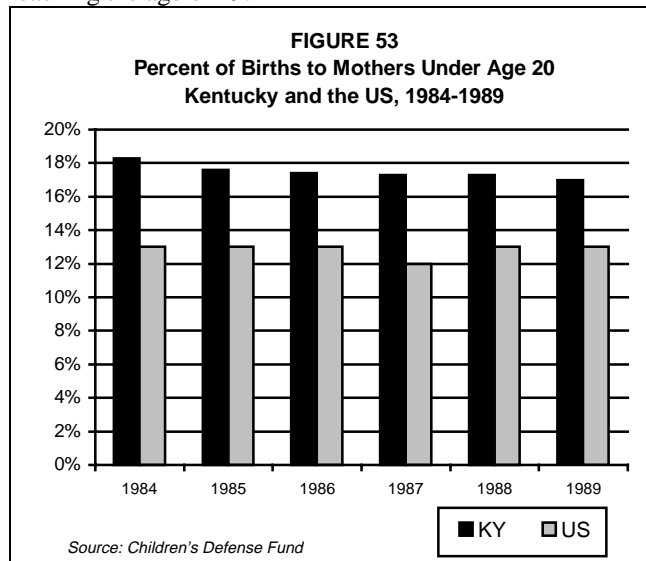
And while women have

made dramatic gains in labor force participation in the state, from 36 percent in 1970 to the present 54 percent, their rate of participation trails the national rate of 58 percent.

Among black families, the rising number of single-parent households has exaggerated long-standing inequities. More than half of black families with children (53 percent) in Kentucky are now headed by single women in comparison to 16.6 percent of white families. In turn, nearly half of all black children in the state (47 percent) live in households that fall below the federal poverty threshold. In the state's most populous counties, Jefferson and Fayette, the percentage of black children who live in poverty is four times greater than that among white children.

Compounding the economic woes of families headed by women of all colors is a significant national deficit in child support from absent fathers -- approximately \$5 billion in 1989, according to the U.S. Census Bureau. The U.S. Department of Health and Human Services estimates that more than half of women in the United States who have children by fathers no longer in the home do not receive child support, either because there is no support award in place or the support awarded is not being paid. Among those women who have secured a child support award, an estimated 49 percent receive less than the full award or no support at all. And, according to a 1992 U.S. House of Representatives Ways and Means Committee report, women who are not poor are almost twice as likely to receive child support or alimony as women who are poor (46 percent compared to 27 percent).

Teenage childbearing also continues to play a well-documented role in the perpetuation of poverty. Unmarried, teenage mothers are at the highest risk of remaining impoverished and dependent upon welfare. As Schorr notes, more than half of total AFDC budgets go to families headed by women who were teenagers when they had their first child, and 71 percent of all AFDC mothers under the age of 30 began childbearing as teenagers. A 1989 study of the characteristics of AFDC recipients in Kentucky found that while only 5 percent of those surveyed had received welfare as a child, 50 percent had given birth to their first child before reaching the age of 19.



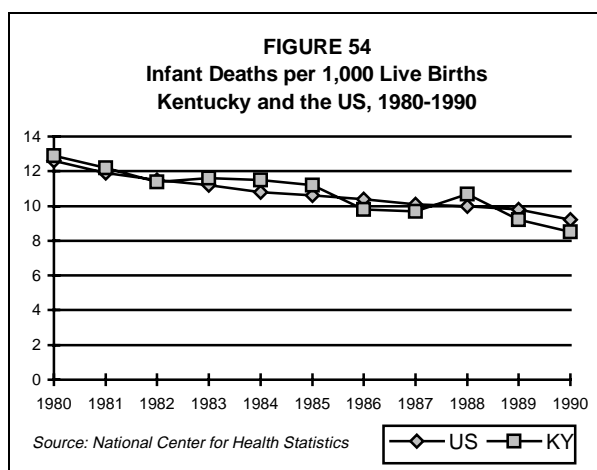
As illustrated, births to women under the age of 20 in Kentucky have declined steadily in recent years, according to the Children's Defense Fund, from 18.3 percent of all births in 1984 to 17.5 percent in 1989. They nevertheless represent a significant problem, particularly in light of the documented consequences of teenage childbearing and the significant portion of out-of-wedlock births to teen mothers (36.5 percent in 1991). Additionally, Professor Gary Hansen has found that Kentucky counties with high child poverty rates have 33 percent

higher rates of births to teens, ages 12 to 17.

POVERTY'S ENDURING LEGACY

Research suggests the persistence of poverty in Kentucky is the product of mean cycles that trap children in the same limiting and debilitating circumstances their parents experienced.

Beyond the immediate humanitarian alarms sounded by deepening poverty in Kentucky are a significant number of long-term outcomes that could influence our social and economic future for decades to come. The long-term implications are disturbing enough to render the contentious debate surrounding family values insignificant. What is almost certain to be significant, however, are the costly consequences of rearing more and more children in poverty. Researchers have empirically demonstrated what common sense would lead most to conclude about poverty: It often ruins lives.



Researchers have consistently tied impoverished environments and their consequences for physical and emotional health to low educational achievement and subsequent patterns of unemployment and underemployment. Often, they have found, the costly consequences of poverty cross generations, as children become entrapped by the same debilitating social and physical circumstances their parents experienced. The enduring cycles of poverty in Kentucky are testament to these findings.

The web of entrapment poverty weaves begins with the absence of proper pre-natal and peri-natal care, which increases the risk of disability and death. As illustrated, both Kentucky and the nation have experienced a gradual decline in infant mortality rates that have been in relatively close alignment. But, while infant mortality has declined both here in Kentucky and nationally, part of the decline has been attributed to technological advances in neonatal care, rather than expanded pre-natal care, including prevention and education. In spite of progress, infant mortality in the United States ranks 19th among industrialized nations, according to the United Nations.

Health and well-being are also more elusive in the lives of poor children. Nationally, public health researchers find that accidental and disease related deaths are three to four times greater among children who live in circumstances of poverty, which often include substandard housing, inadequate clothing, poor nutrition and the absence of preventive health care (Baumeister et al.). According to the National Center for Health Statistics, twice as many children under the age of 18 who experience limitations in major activities (work, housekeeping or school activities) are from families with annual incomes below \$10,000 when compared to children from families with annual incomes of \$35,000 or more. In 1986, the Children's Defense Fund estimated that poor children were as much as two times more likely than children living outside of poverty to have one or more disabilities, which come at an inestimable cost to society.

When poor children enter Kentucky schools, research suggests they are less likely to be ready to learn than their more affluent peers and more likely to be adversely affected by negative attitudes and practices that constrain their achievement. The Children's Defense Fund reported in a 1986 study that poor children tend to lack the basic skills more affluent children possess and to score lower on achievement tests. The expanding number of children in poverty also may contribute to a dramatic rise in learning disabled children, who, according to the U.S. Census Bureau, comprised a portion of enrollees in public school programs that grew 103 percent from 1977 to 1987 (Baumeister et al.). In his analysis of 1990 Census data, Dr. Hansen found that among Kentucky counties with the highest child poverty rates, high school graduation rates are 10 percent lower than in counties with lower child poverty rates.

If acute disadvantage persists in the lives of so many Kentucky children, the promise of the Kentucky Education Reform Act (KERA) may be muted. Research, however, has clearly established the predictors of failure and, hence, points of intervention. "School failure and poor reading performance *as early as third grade*, truancy, poor achievement, and misbehavior in elementary school, and the failure to master school skills throughout schooling are among the most reliable predictors of early childbearing, delinquency, and dropping out of school," observes Schorr. Schools, researchers now conclude, indeed can help change children's lives. Teachers have been identified as potential role models and sources of support who can contribute to the resiliency of poor children and enable their escape from poverty.

For some children, there may be no escape from the sting of poverty. Through the ubiquitous presence of television, poor children are made acutely aware of the poverty in which they live. That knowledge alone compounds the sense of alienation and isolation that some researchers believe presents the most formidable obstacle to escape from poverty. Beyond the stigma of impoverishment in a culture that defines achievement largely in terms of acquisitions, research suggests that emotional scars are also more likely to mar the lives of poor children. In spite of a bias that leads to over-reporting of abuse among poor families, they have an elevated risk of using violence toward their children. According to the U.S. Advisory Board on Child Abuse and Neglect, more than 90 percent of incidents of abuse or neglect occur in families who live below the median income while between 40 percent and 50 percent of incidents occur within the 15 percent of American families who live below the poverty level (Center for Law and Social Policy). In Kentucky counties with high rates of poverty, Professor Hansen finds that reports of child abuse are 11 percent higher and substantiated abuse is 9 percent higher.

Because poverty weakens parenting skills, which are already under significant stress in households headed by single parents, the psychological well-being of poor children may be jeopardized. Among its most appalling effects, observe Ray Marshall and Marc Tucker in *Thinking for a Living*, is the way in which it deprives many of its youthful victims "of a belief in themselves, in the capacity to succeed, no matter what they do." Marshall and Tucker argue that the absence of this belief in an upward link to a better life isolates many American children and their families from hope that must be provided through comprehensive investment in education and training.

FUTURE IMPLICATIONS

We know where poor families with children are most in need of our help, how to help them, and what it will cost us if we do nothing.

In Kentucky, our prospects for the future may rest on how quickly and how successfully we adapt to the change that is certain to be a constant in the lives of families. One of the changes that portends future problems is deepening poverty among families with children. In spite of the constraints of limited federal and state resources, social policy researchers suggest that programs aimed at families, particularly families in poverty, should be broadly expanded in the long-term interest of society.

Part of adapting, suggests Professor Wilson, is elevating the public dialogue from sensationalistic and inaccurate media accounts of family failure that further undermine an already strained family and community fabric. Wilson recommends a more factual assessment of family life in America and a renewed, creative focus on what works rather than what fails. He believes failure-oriented research and media doomsaying belie the resiliency and strength of families. The challenge to state policymakers, Wilson suggests, is to recapture the middle ground, to develop policies and programs that reflect knowledge about families and family services, much of which is available to them at state universities. And, he adds, we must become far more diligent in our efforts to measure outcomes and identify "best practices" that provide a return on public investment. "When we deliver inter-generational services, reach children by reaching their parents, the effects persist over time," observes Wilson. "The more we can look at programs to reinforce and empower families to do for themselves, the more successful we and they will be."

Successful models have demonstrated that providing more for families in need during a time of declining resources, requires a radical philosophical shift to a more flexible, less bureaucratic, preventive mode of service. Outcomes, suggests Mark Friedman, a senior associate with the Washington, D.C.-based research group, the Center for the Study of Social Policy, are emerging as a driving force behind budget strategies and priorities. States and state agencies are identifying programmatic and larger societal goals to meet through public investment and measuring their progress toward those goals.

To help achieve outcomes such as reducing welfare dependency and lifting more children out of poverty, Friedman suggests state policymakers can find dollars to finance proven family programs from untapped federal sources and by carving pieces out of "failure-oriented" budgets and dedicating them to prevention. As need escalates, talk of using human service bonds to finance critical investments in the future is also emerging.

An example of an alternative approach to family services is seen in Michigan's Families First Program, which spends up to \$500 per family to provide help when it is needed and relieve stress caused by inadequate resources. Front-line social workers are given the flexibility and the authority to spend whatever necessary to empower families, to help them regain equilibrium and move out of crisis. Similarly, Iowa is advancing promising welfare reforms that join social workers with recipients to develop individualized, long-range plans for independence. Likewise, Hawaii is enabling escape from poverty by providing universal access to affordable, preventive health care. Here at home, the inter-generational services of Louisville's Family Literacy Program and the Family Resource Centers that are part of KERA are promising programs designed to preserve and strengthen the family unit. In order to ensure the continued effectiveness of these and other programs, it is essential that we measure their real impact on the lives of families.

The recommended long-term strategy which has emerged from a number of fronts is that of identifying high risk groups and investing in intensive help. Those at highest risk, according to Professor Schorr, are children growing up in persistent poverty, in neighborhoods of concentrated poverty, in homeless families, with a mentally ill, alcoholic, drug-addicted or isolated parent. Professor Hansen has identified those Kentucky counties where concentrated services are most needed. In these counties, he observes, "Poor children are likely to live in multi-problem families. Plagued by poverty, disorganization and stress, many of their families lack the emotional and material resources to meet children's needs. Often they also lack access to outside help to make up the difference." It is precisely such help family researchers insist must be bolstered and expanded.

Schorr argues convincingly that we know where poor families with children are most in need of our help, how to help them and what it will cost if we do nothing. In Kentucky, it will cost our "common wealth" a future of promise, prosperity and progress. If we remain indifferent to the growing needs of Kentucky's poor families with children, we will help ensure the perpetuation of poverty of unacceptable breadth, as well as the deprivation, the mediocrity, the pain and the costly consequences that attend it.

Not ignorance, but ignorance of ignorance
is the root of all misfortunes.

Plato

TOWARD CONTINUOUS LEARNING

Our most immediate response to the growing imperative of education and training is most often an economic one. Many of us have experienced firsthand the disadvantage that has historically attended inadequate education and training, one that is intensifying with each day that passes. Gaps in education have a visible dollars-and-cents impact on families, communities and states like ours. But education is more — much more. Education provides the foundation of knowledge that enables broad, enduring benefits to society. It permits those who possess it to become better, more effective, parents who pass the legacy of knowledge and understanding on to generations who follow. Beyond the circle of family and friends, education enriches the contributions we make as citizens of this state and this nation. And, importantly, it brings insight and enlightenment to our lives, broadening our understanding of the world around us and the people with whom we share it. Knowledge is indeed power — to change the world, as well as what lies within us. Here in Kentucky, we must capture more of it if we are to prosper in the fullest sense, to become all that we can be.

NEW WORKFORCE CHALLENGES

*The workplace, indeed our society, is being reoriented.
Knowledge will be key to our ability to adapt.*

The reorganization and reorientation of the American workplace has involved movement from an inexact, often uncertain reliance on muscle and instinct to extraordinary precision, made possible by sophisticated technology, developed and guided by human intellect. Many workers who once listened intently for familiar sounds, smells or colors in production processes now rely on computerized schematics, controls and, more importantly, knowledge of complex systems. Technology's vast embrace of information has challenged millions of workers, who make products ranging from cars to computers, to extend their own intellectual reach, to use and effectively manage a vast store of information and, in the process, become more active participants in the day-to-day business of the enterprises for which they work. Indeed, many suggest the nature of work as we know it is changing (Bridges; Drucker). As a consequence, it is increasingly important to prepare people for the world of work, where learning will be continuous, analysis and problem-solving integral, and critical thinking imperative.

Reorienting workers, many of whom only completed high school, to this new paradigm is both essential and inevitable if Kentucky is to become and remain a competitive state.

Always a part of the foundation for economic progress, reliance upon knowledge and intellect — the strength of human capital — is rapidly being diffused to all levels of the workforce. Consequently, today's workplaces are becoming painfully unaccommodating. They challenge workers to reach ever rising levels of performance and productivity. To do so, employees must be able to function successfully both as individuals and team members and possess a solid foundation in the basics, ranging from math and verbal literacy to an overall ability to learn. They must be highly skilled, exceptionally knowledgeable, and willing and able to learn and relearn, as the workplace — and the jobs we hold — undergo nearly continuous transformation. Because rapid change will demand intellectual agility, it is important and even critical that skills be developed early and continually refined.

The call for a strategy to develop a workforce that is well educated, highly skilled, and broadly trained is one of the few areas in which experts around the nation are in complete agreement. The need for human capital in order to facilitate economic development is universally recognized. It is one of the most significant challenges facing Kentucky, as the arrival of global competition is no longer a prediction that looms on the horizon but part of working and doing business in today's economy.

The obstacles to change, however, are formidable. In spite of the enormous progress Kentucky has made in recent years, the observations of the Kentucky Tomorrow Commission in its 1986 report on the future continue to sound a familiar and uncomfortable ring of truth. "Kentucky's traditional industries have not reinforced the need for a good education. Quite the contrary . . . People began to think that they did not need an education. However, this is not the case now, nor will it be in the future." Today, the vestiges of this woefully outdated perspective linger in our state's psyche and continue to limit its prosperity. Should deficits in workforce training and education persist into the 21st Century, they can be expected to continue inhibiting income growth and equality and expand poverty's grip on the Commonwealth.

In the absence of a system of education and training that reflects and accommodates economic and social change, Kentucky will almost certainly be ill-prepared to meet the challenges of the future. Dr. David Freshwater, an agricultural economist at the University of Kentucky, cites the adequacy and quality of the state's workforce as key to our ability to compete in the global marketplace. Central to the future of our economy is the question of whether growth in demand for workers will mesh with the supply of workers with the required skills. Bureau of Labor Statistics data suggest that Kentucky may face a future shortage of workers with the minimal skills required to qualify for high-skill jobs, and, at the same time, have too many workers for available low-skill occupations. Such a gap could cost Kentucky precisely the firms it hopes to retain and attract in the future, those that enable rather than frustrate the pursuit of prosperity.

To meet the demands of today and tomorrow, Kentucky policymakers will be challenged to help cultivate what the Kentucky Science and Technology Council terms a "high-performance" workforce through a continued commitment to excellence in elementary, secondary, vocational-technical, and higher education, and vigorous attention to the training and retraining of our present workforce. Integral to the strategy is the coordination of the myriad federally funded training programs that already exist in order to increase efficiency and effectiveness, and the elimination of needless roadblocks to education and training. Importantly, broadening the scope of Kentucky's effort and engaging more employers in the process of upgrading skills will be essential to the achievement of such high performance goals. A high quality, fully integrated, "seamless" system of education and training is almost universally regarded as the most potent antidote to poverty and low incomes and perhaps the only one that offers a long-term remedy. While we have made important strides in educational reform with

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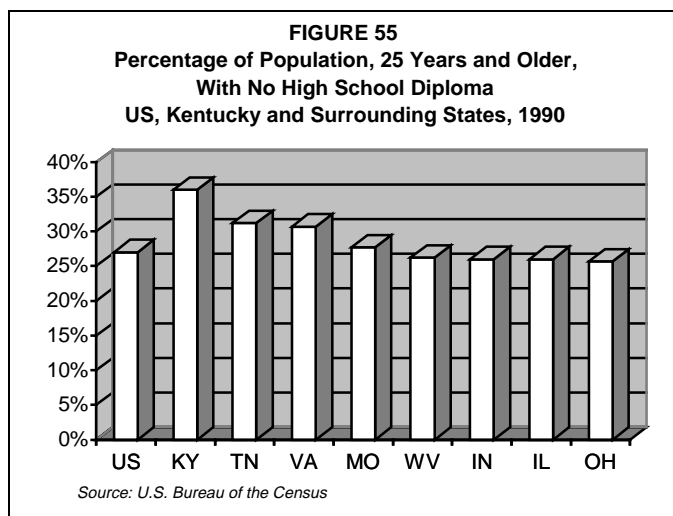
the enactment of KERA and in the creation of the Workforce Development Cabinet, which brings an important coherent focus to a range of programs, the future will continue to challenge citizens and policymakers alike to continue working toward the goal of refining and developing our educational system to ready the people of the Commonwealth for the work and the world of tomorrow.

PERSISTENT DEFICITS

By virtually every measure, we are undereducated and ill-prepared for the challenge before us.

The gaps in achievement that citizens and policymakers hope the landmark Kentucky Educational Reform Act (KERA), a mix of vocational and technical training initiatives, and higher education will ultimately close are significant. By virtually every measure, the population of Kentuckians eligible for participation in the labor force is undereducated and ill-prepared to meet the challenge before us. Prominent among the litany of often repeated deficiencies are high dropout rates, a low rate of college attendance and one of the highest percentages of adults in the nation who do not have a high school diploma. While significant and even dramatic progress is being made, the Commonwealth still has far to go in its drive to close persistent education and training deficits.

Perhaps most problematic in regard to workforce development is the presence of a large population of undereducated citizens, one the Workforce Development Cabinet is now in the



process of more accurately defining through a statewide literacy survey to be completed in the summer of 1995. This survey will enable the state to define the true scope of the problem and target assistance to geographic concentrations of undereducated Kentuckians. Data from the 1990 Census indicate that Kentucky has the second highest percentage of adults in the nation whose literacy skills are likely to be limited as a consequence of not having completed high school. As

illustrated, the percentage exceeded every surrounding state and the national average (24.8 percent). More than 35 percent of Kentuckians 25 years or older, or an estimated 900,000 adults in the state, do not hold a high school diploma. Almost half of Kentuckians who did not complete high school (442,579) have completed less than eight years of formal education. Nationally, an estimated 44 million Americans or nearly 27 percent of the adult population of the United States does not hold a high school diploma. Among states, the rates are as low as 15 percent in Alaska and as high as 37 percent in Mississippi.

The substantial segment of Kentucky's population without a high school diploma has had a significant and self-perpetuating impact on the social and economic well-being of the state as a whole, as well as on the lives of individuals. Those who do not complete high school are believed to possess limited literacy skills and, consequently, face difficulty functioning in society. Such limitations in literacy affect virtually every aspect of life, including the ability to work and prosper, to make informed consumer choices, to cope with the stresses of parenting, and to become engaged in the civic life of one's community, state and nation. In turn, social capital and the quality of leadership at every level are adversely affected.

While it is agreed that high literacy rates are not a panacea for society's ills, studies uniformly show a positive correlation between education (high literacy rates) and high standards

TABLE 10 Educational Attainment, Full-Time Labor Force Participation and Earnings in Kentucky, 1990			
EDUCATION	Percent Who Worked Full-Time, Year-Round	Annual Earnings Some Work	Earnings Full-Time, Year Round Work
Less than 9th grade	42%	\$12,801	\$19,338
9th-12th grade (no diploma)	45%	\$12,807	\$19,337
High School	58%	\$16,002	\$21,209
Some College	54%	\$16,831	\$24,492
Associate Degree	65%	\$19,785	\$24,630
Bachelor's Degree	65%	\$28,153	\$35,864
Master's Degree	49%	\$28,800	\$36,688
Professional Degree	71%	\$66,884	\$78,296
Doctorate Degree	70%	\$42,590	\$48,225
<i>Source: U.S. Census Bureau</i>			

of living. Highly educated societies are rarely, if ever, poor. For example, a study conducted by the U.S. Department of Education found that those with higher levels of literacy were more likely to be employed, work more weeks in a year, and earn higher wages than individuals with lower proficiencies.

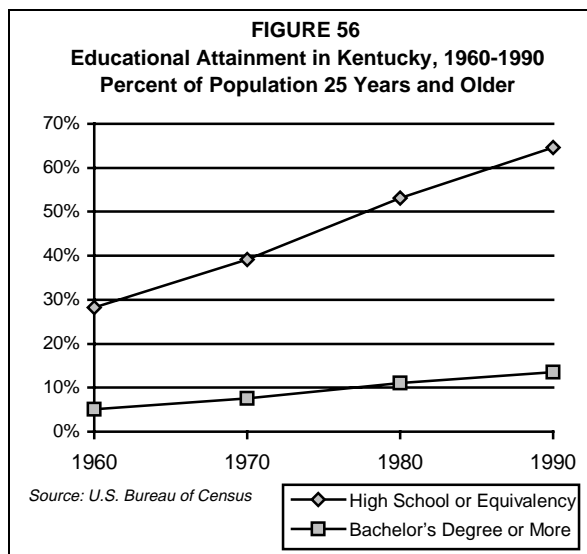
As illustrated, Census data reveal the impact of education on both labor force participation and earnings in Kentucky.

While the aging of the less educated component of Kentucky's labor force influences these data, labor force participation among those with less education nevertheless reflects significant obstacles to full-time, year-round work. According to the Workforce Development Cabinet, more than half of adults in the state who were not working in 1990 (54 percent) did not complete high school.

Importantly, not only do incomes increase with educational attainment, those Kentuckians who possessed a Bachelor's Degree or more education but were not full-time participants in the labor force in 1990 still earned higher incomes than full-time, year-round workers with less education. These data underscore the considerable economic value of higher education and shed light on the issue of income inequality, as stagnant and declining wages continue to have a disproportionate impact on the undereducated, less skilled ranks of American workers.

The need to train, retrain and provide fundamental education to adult Kentuckians in their communities and at their workplaces is acute. Most of Kentucky's future workforce is already on the job. An estimated 92 percent of the current workforce will be below retirement age in the year 2000, and 75 percent will remain below retirement age in the year 2010, according to the Cabinet for Workforce Development. During 1992-1993, the Department for Adult Education and Literacy provided adult education and literacy training to nearly 50,000 Kentuckians through a variety of community-based outlets. Among those who received training, 42 percent were employed while 35 percent were unemployed and seeking work. Additionally, the vast majority of those who received services (89 percent) were age 44 or younger.

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In spite of persistent deficiencies, Kentucky's schools, the policymakers who guide them and the citizens who depend upon them have clearly made progress on identified goals, specifically high school completion and college graduation rates. From 1960 to 1990, the percentage of persons age 25 years and older with a high school diploma or its equivalent more than doubled, from 28.3 percent in 1960 to 64.6 percent in 1990. Over the same time period, the percentage of Kentuckians 25 years and older who hold a Bachelor's Degree or more education has increased nearly three-fold, from 5.1 percent to 13.6 percent.

U.S. Department of Education data indicate that graduation rates are increasing in the state. During the 1988-89 school year, an estimated 69 percent of students, based on enrollments four years earlier and adjusted for migration, graduated from Kentucky high schools, as compared to a national average of 71.4 percent. By these estimates, Kentucky ranked 39th nationally in 1989. During 1991-1992, the rate remained virtually unchanged, according to state data, when an estimated 69.3 percent of students finished high school. These data show that recent graduation rates, while less than optimum, have been closely aligned with the national average and suggest an improving literacy capacity.

However, as in many other arenas, larger structural changes have outpaced our progress. As Professor Ann Tickamyer of the University of Kentucky observes, a high school diploma prepares students for the good jobs of a previous generation, not for today's marketplace. In the current global economy, education or training beyond high school is required to attain and maintain competitiveness, and, as Dr. Tickamyer notes, this is true for places, as well as individuals. Earlier studies which associated economic growth with increased educational attainment have been succeeded by studies showing that, especially in rural areas, college completion or the presence of post-secondary educational institutions positively influences economic growth.

In spite of the state's continued ranking near the bottom (48th) in college graduates, recent broad movement into state-supported colleges, particularly community colleges, suggests the future may hold an increase. According to Dr. Raphael O. Nystrand, Dean of the School of Education at the University of Louisville, public enrollment in Kentucky colleges increased 2.5 times faster than the national average from 1985 to 1990, 32.7 percent as compared to 13.3 percent nationally. Importantly, the enrollment of non-traditional students, those age 25 and older, and part-time students has increased at state-supported schools, suggesting that an increasing portion of the state's workforce has moved to upgrade and refine skills to meet the growing demands of today's workplace.

THE PROMISE OF REFORM

Unique among states, Kentucky has mustered the considerable political will to forge a dramatic new path for public education.

In spite of its ranking at or near the bottom of the 50 states in many aspects of educational attainment, Kentucky has ascended to national prominence in educational reform. Over the past decade, Kentucky's courts, a succession of governors, the General Assembly and a broad constituency of citizens across the state came to recognize that the state's persistent economic misfortunes were rooted in a poor educational foundation. Its weaknesses, observes Dr. Tickamyer, included inequitable funding, inadequate delivery, corruption-laden governance, and consumer alienation and disinterest. The latter, manifested in a long-standing deficit of social capital, served to perpetuate the inadequacies of a deeply flawed system.

Importantly, however, citizens and policymakers in Kentucky have acted to correct and repair the state's elementary and secondary educational system. The nationally acclaimed, much scrutinized and often criticized Kentucky Educational Reform Act (KERA) of 1990 was the product of that action and the catalyst on which hopes of a better future now rest. With its implementation, Kentucky found itself in the unfamiliar position of national leadership and as the focus of legions of researchers, as well as policymakers from other states and the federal government. All are watching closely as Kentucky advances a system built on a radically different foundation, the cornerstones of which are equity, participatory management and performance-based reward.

Educational reform in Kentucky, as in many other states, came in response to a court challenge of the inherent inequality in the funding mechanism for public schools. KERA aimed to restore equity to the funding system and mandated sweeping reform in the

With the enactment of KERA, Kentucky found itself in the unfamiliar position of national leadership and as the focus of legions of researchers, as well as policymakers, from other states and the federal government.

delivery and oversight of public education. A fundamental premise of the ground-breaking legislation is that those closest to the students (teachers, parents, and school administrators) should have the authority to make school-level policy decisions, in exchange for assuming responsibility for student performance, guided by state goals. KERA provides procedures for achieving state goals and creates a series of rewards and sanctions based on student performance. Increased accountability for student performance, in turn, is expected to continue increasing both teacher and student productivity. With clearer goals and ever rising standards, the imperative of using existent resources more wisely also rises. Uncharacteristically, KERA also establishes its own equivalent of the federal watchdog agency, the General Accounting Office, in the Office of Educational Accountability, which provides oversight and assessment of the progress of reform within the legislative branch of state government.

While many have chafed at elements of KERA and the structural changes it has wrought, early results suggest it is achieving progress. In the most recent series of tests since the enactment of KERA, students in 88 percent of the state's schools improved their performance. Moreover, most teachers, principals and parents think schools in Kentucky have improved since the enactment of KERA, according to a 1994 poll conducted by the Kentucky Institute

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for Education Research, though many express reservations about the validity of tests used in monitoring progress. In response to concerns about the validity of KERA testing, the Office of Education Accountability has assembled a national team of experts who are evaluating the validity of the tests and their relationship to national standards. A report on the panel's finding is expected to be released in the early spring of 1995. Additionally, the Kentucky Institute for Education Research is conducting a study of KERA testing.

In school finance, perhaps the single most important arena of reform, KERA has also made measurable improvement, according to the Kentucky Institute for Education Research. The gap in per pupil revenues between the wealthiest and poorest 20 percent of districts was reduced by more than 50 percent between the 1989-90 and 1992-93 school years. At the same time, total per pupil revenues increased 35 percent, from \$3,444 in 1989-90 to \$4,639 in 1992-93, moving Kentucky from 42nd to 29th in the nation. Importantly, the foundation for educational achievement is also being laid in early years; 82 percent of eligible three- and four-year-olds in the state received preschool services through KERA and Head Start partnerships in 1992-93, up from 20 percent in 1988-89.

Under KERA, students are also dedicating more time to the basic skills of reading, writing and computing. As a result, 75 percent of schools demonstrated progress toward their improvement goals in 1993-94. KERA's broad emphasis on writing across the curriculum is believed to be a critical component of reform, in view of persistent deficiencies in writing skills among U.S. students. Moreover, the technological component of KERA calls for full installation

An attendant and unsung benefit of KERA is the mounting social capital it is cultivating and nurturing at the local level throughout the state.

of a \$600-\$700 million computer system by 1998. By the end of the 1993-94 school year, an estimated \$100 million had been spent toward the goal of establishing student and staff work stations and providing the professional development needed to facilitate learning. When fully implemented, schools in Ken-

tucky will have one work station for every six students and centralized work stations for staff, who will have access to the Kentucky Department of Education, as well as the Information Super Highway.

An attendant but unsung benefit of KERA is the mounting social capital it is cultivating and nurturing at the local level throughout the state. At present, more than half (780) of Kentucky's 1,400 schools have site-based councils in place, involving 1,500 parents in the work of directing and planning school operations. By 1996, all schools will be required to have councils in place, which are expected to engage up to 3,000 parents. From early indications, councils are proving to be an important training ground for future representatives, as many members have moved on to seek election to local school boards and play an even broader role in the future of Kentucky schools.

Importantly, however, the tests at the heart of the high-stakes accountability system in KERA indicate significant room for improvement. While the performance of students at 88 percent of the state's 1,400 public schools improved in the 1993-1994 school year, more than 80 percent of the state's 140,000 fourth, eighth, and 12th grade students continued to score at the "novice" or "apprentice" level — the lowest possible scores — on the reading, math, science and social studies tests. Eventually, school officials want the average student to score at the "proficient" level, the second highest of four levels used in grading, which signifies understanding of key concepts and the ability to communicate them clearly.

And while 90 percent of children eligible for preschool education are being served, 30,000 children remain ineligible. Education Commissioner Dr. Thomas C. Boysen has expressed concern about the growing population of low-income children from working poor families who are being excluded from these important, potentially life-changing opportunities. As the ranks of the working poor expand, so too does the imperative of establishing new, more inclusive criteria to determine need in a variety of service areas. Social scientists assert that the cost of meeting this need today is minimal compared to the downstream cost of a range of outcomes that adversely affect the productivity of children reared in poverty.

The path of educational reform in Kentucky offers immense promise of long-term benefits. Indeed, by a number of benchmarks, KERA has begun to produce measurable progress only four years into its implementation, while the dramatic, systemic change it mandates might be expected to take many more years to achieve results. Its most immediate challenge will be securing the funding needed to fully implement its broad-based plan for restructuring Kentucky schools. For example, national trends are towards all-day kindergarten while half of Kentucky's youngest students attend only half days. Additionally, the visionary plan for the Kentucky Education Technology System will require an infusion of significant capital to enable students and professionals to capture the immense opportunity that technology holds for learning and development. Indeed, the movement of the economy toward heavy reliance upon information technology compels broad investment in technology at every education and training level.

Many hope that KERA will prove to be a potent long-term remedy for underlying educational deficiencies that have inhibited income growth and exacerbated poverty and decline in Kentucky. On the other hand, as State Demographer Michael Price has observed, KERA may prove to be an investment in people who will continue to leave the state in search of opportunity that simply is unavailable to them here. If so, according to Dr. Thomas R. Ford, demographer and University of Kentucky Professor Emeritus, history will be repeating itself, as past expansions of investment have been followed by waves of out-migration among young people. In order for KERA to yield broad-based economic returns for the state of Kentucky, it must coexist with policies and programs designed to cultivate a high-skills workforce and attract high-skills workplaces to help ensure opportunity tomorrow.

CLOSING THE SKILLS GAP

Logging another first, Kentucky has brought focus to its workforce development initiatives, but the need for post-secondary training and education remains acute.

As the demand for highly trained workers who have a solid intellectual foundation continues to expand, the importance of honing the skills of new and current workers is critical to Kentucky's future. Indeed, a number of developing countries are making rapid progress in educating and training their existent workforce and attracting industrial investment. They have become as much our competitors for jobs and opportunity as Tennessee and Ohio. As high skills rapidly become critical to the success of individuals and enterprises in the global economy, the development of human capital in the current labor force is fast becoming a means to survival that eclipses virtually all other development strategies.

Voices of support for training our present and future workforce through vocational/technical schools, apprenticeships, school-to-work programs, literacy and adult education, on-the-job training, universities and community colleges, as well as other strategies, are

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remarkably united. In 1990, the Commission on the Skills of the American Workforce defined the choice before the nation and its states with the title of its landmark report, *America's Choice: high skills or low wages!* In it, this bipartisan commission argues forcefully for the adoption of high-performance work organizations, which enable substantial contributions from workers, and for a broad-based commitment to training and educating America's workforce. Recognizing that a growing component of the workforce, as much as 60 percent by the year 2000, will require post-secondary education but not a four-year college degree, the commission recommended the creation of a system of technical and professional certificates and associate degrees for those who do not wish to pursue a degree and incentives or rewards for employers who invest in training and education and pursue high productivity goals.

Similarly, a 1994 report from the National Conference of State Legislatures concludes that the formula for success in today's global economy can be distilled in two equations: human resource development = high skills; high skills = high wages. Human resource development is the combination of education, training, and employment policies used by businesses, states and nations to improve the learning and productive capabilities of their citizens. Emerging state strategies include educating and informing firms about high-performance concepts such as team-based organization and benchmarking for outcomes; targeting clusters or networks of industries to develop shared learning systems; creating low-interest loan vehicles to assist with high-performance training; and integrating high-performance concepts into the curricula of training and education programs.

In spite of emerging innovations in other states, as well in Kentucky, our current system of education and training remains relatively fragmented, frequently inaccessible or unaffordable, poorly linked to business and industry, and underused. Only an estimated 30 percent of young people are in any type of vocational-technical education and even fewer are in apprenticeships (Lynch.). Apprenticeships, which have traditionally been supported jointly by labor unions and employers, have declined along with the ranks of organized labor. According to Dr. Stephan J. Goetz, an agricultural economist at the University of Kentucky, the Commonwealth presently ranks 43rd in the nation in apprenticeships, providing roughly one per 1,000 jobs.

For those who anticipate being trained on the job, the reality is a national vacuum. In 1990, the Commission on the Skills of the American Workforce reported that while an estimated \$30 billion was being spent annually on worker training, the lion's share (two-thirds) was going to educated professionals. Moreover, \$27 billion of the \$30 billion issued from 15,000 employers — one-half of 1 percent of the nation's employers. The most likely beneficiaries of this training were college-educated managers, professionals, technicians and supervisors, and professional sales staff.

New entrants to the labor force, the Economic Policy Institute reported in 1993, do not fare much better. It was found that only 14 percent of 25-year-old males and 8 percent of 25-year-old females had received formal on-the-job training. Our toughest global competitors abide by altogether different standards. Studies have shown, for example, that new hires in Japan or Japanese transplants receive approximately 300 hours of training while their U.S. counterparts receive only 48 (Lynch).

The importance of education and training has reached critical mass. Although Kentucky is well on its way to remedying its educational infrastructure to meet the challenges of a global economy and the future, demographic realities illustrate the limitations of reform. The majority of Kentucky's year 2000 workforce is already on the job today, and a declining youth population and continued out migration of young people could adversely influence its replenishment. As Dr. Goetz notes, Kentucky's relatively low population and labor force growth point to the need to improve the preparation of adolescents; focus on the skills needs of small, often rural, firms; increase the sharing of training costs among firms; and place special emphasis on the requirements of the automobile industry.

Strategies aimed at strengthening the foundation of knowledge and advancing the technical skills of adults already in the workforce also need to be married with a strategy for preparing the unemployed and underemployed for participation. This challenge will be made more difficult and complex in the future by a range of social and economic factors. As Kentuckiana Regional Planning and Development Agency Executive Director Jack Scriber observes, a rapidly increasing share of young adults will be from single-parent, low-income, immigrant and minority households, groups which have historically been poorly served in this country's school systems. In order to better position Kentucky for the future, Scriber suggests, the state must take the lead in revising the traditional approach to disadvantaged, minority and disabled citizens. Capturing this untapped potential offers a means to averting the significant downstream costs of lost productivity, joblessness and incarceration.

Forecasts for the upcoming decade and the future in general predict that for the first time in history, the majority of new U.S. jobs will require some education beyond high school. Only 27 percent of new jobs will require "low skill," compared to the present 40 percent. To succeed economically and anticipate and adapt to occupational displacement that is certain to accompany the dynamic economy of the future, Kentucky must close a significant skills gap. The Cabinet for Economic Development cites low educational attainment, a shortage of highly skilled and high technology-oriented labor, and a high illiteracy rate as the primary reasons why Kentucky needs to expand workforce training. As workforce development and economic development become almost synonymous, job training and skills development are no longer optional but mandatory. While the Cabinet observes that Kentucky's investment in training is reasonably high, programmatic enhancement and the elimination of gaps in the delivery system are necessary.

The creation of the Workforce Development Cabinet in 1990 brought renewed vigor and long-overdue focus to a vital state government mission.

A critical component of reform in Kentucky reflects the sweeping changes in our economy. The creation of the Workforce Development Cabinet in 1990 brought renewed vigor and long-overdue focus to a vital state government mission. By uniting most state-supported job training programs and adult education agencies under a single umbrella, the General Assembly moved to provide effective coordination, improved policy direction and more efficient management of limited resources. The Workforce Development Cabinet is unique among the 50 states and its ambitious efforts are garnering important benefits.

In the coming years, the task before the Cabinet for Workforce Development will be to coordinate a complex mix of training and development initiatives in the state and to reform delivery. A \$24 million federal grant will enable the development of a statewide school-to-work initiative. However, significant investment will be required to bring timely, flexible training to vocational-technical schools, deliver customized training to employees through the Kentucky Tech system, advance and maintain the school-to-work initiative, enhance outreach and expand opportunities for adult education, maintain a link to those in need through Employment Services, and provide important and constructive incentives and support mechanisms to encourage employers to invest in workforce training and development. Deficiencies in the skills of present workers must be systematically addressed if Kentucky firms are to remain competitive.

In addition to traditional vocational-technical schools, many believe the state's community colleges can and must play a pivotal role in closing part of the growing need for post-secondary education in Kentucky. However, by some measures, they appear woefully underfunded to meet the challenge. Funding per full-time equivalent students at Kentucky's com-

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munity colleges presently ranks last among the 15 southern states which comprise the Southern Regional Education Board. In contrast to some states, however, Kentucky has no local funding effort in place for community colleges. In spite of lagging investment, record movement into Kentucky's community colleges has occurred over the most recent decade, demonstrating strong demand. To provide timely training and education, it may be necessary to ensure adequate funding for education and training initiatives where need and demand are increasing at a fast pace.

As the employer-employee contract continues to be renegotiated, re-employment and retraining will rise on the public policy agenda. In 1992, according to the Workforce Development Cabinet, an estimated 75 percent of laid-off U.S. workers were on permanent layoff — the highest percentage since 1967 when tracking of these data began. Moreover, bouts of unemployment are growing longer. Last year 21 percent of the unemployed had been jobless for more than six months, the second highest level of long-term joblessness since the end of World War II. The dilemma that displaced workers confront underscores the critical importance of building a more responsive, integrated system of re-employment and retraining.

The challenge of closing Kentucky's skills gap is multifaceted. Essential to its realization is the elimination of obstacles to skills attainment and the development of programs that are responsive to citizen need and demand. Extraordinary opportunity, for example, exists in Kentucky's public schools, as technology becomes a fixed part of the infrastructure that can serve multiple purposes. Additionally, Kentucky's universities and community colleges have expanded outreach and developed more responsive programs in an effort to meet rising need.

Importantly, as Dr. George B. Autry, President of MDC, Inc., a nonprofit Chapel Hill economic development firm, noted in a June address to a Louisville conference on economic development, "Kentucky needs an integrated system for upgrading workers in the context of critical thinking skills that their work demands." Critical to that relationship will be the state's ability to raise the floor of knowledge (critical thinking skills) in general and to develop flexible training initiatives that can be highly responsive to workplace change, which is expected to accelerate at a rapid pace. The need is acute and it must be met with an appropriate response if Kentucky is to close persistent gaps and create new opportunities.

HIGHER EDUCATION

While higher education continues to provide the intellectual capital needed to meet future challenges, cost poses an increasingly formidable obstacle to its benefits.

As the nation and its states shift to an economy dominated by information transfer and knowledge utilization, the role of higher education in the pursuit of prosperity has risen exponentially. While higher education has historically provided the intellectual foundation on which the institutions of our society have been built, need of the myriad benefits it provides is expanding broadly. Knowledge and the analytical and creative skills higher education enables are becoming central to our lives. Increasingly, intellect will not only provide public and private institutions with direction, it will shape the work we do, the products we make and the future we build. As a consequence, the institutional framework which has historically provided that intellectual foundation — our colleges and universities — will be expected to accommodate that need. Ultimately, the adequacy of present levels of public commitment to education will come into question, as we attempt to meet this compelling and expanding need with what many believe is an outdated institutional framework.

In just a few short years, most of our workforce will require post-secondary education, a substantial portion of which the state's publicly supported universities will provide. Just as our nation relied upon its schools to enable the transfer to a manufacturing-based economy, observes Dr. Raphael O. Nystrand, Dean of the School of Education at the University of Louisville, it now looks to its institutions of higher education to prepare women and men to meet the demands of a dynamic economy and a changing society. Kentucky's institutions of higher education, like those around the nation, will be challenged to enhance services in response to mounting public pressure for more affordable and accessible programs.

Ironically, as the push for more workers who possess higher skills intensifies, public support for higher education has waned nationally. Today, state university administrators candidly observe that it is no longer their practice to refer to the institu-

Competing and compelling needs have eroded once generous public funding for higher education, challenging administrators to do more with fewer state dollars and prompting closer scrutiny at every level.

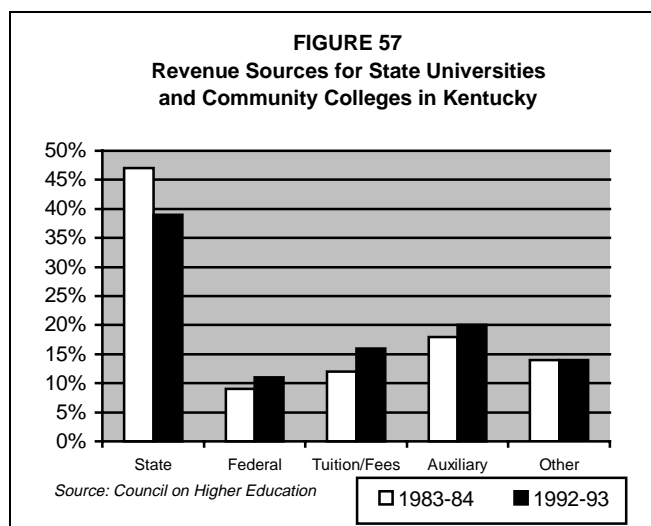
tions which they represent as "publicly supported," but rather as "publicly assisted." Competing and compelling needs have eroded once generous public funding for higher education, challenging administrators to do more with fewer state dollars and prompting closer scrutiny at every level. This "loss of immunity from public scrutiny," observes Dr. Nystrand, is perhaps the most significant trend in higher education.

Public disclosure of fiscal misconduct at prestigious U.S. universities has engendered mistrust, prompted demands for greater accountability and tightened public purse strings. In Kentucky, questions from policymakers about faculty productivity have focused unwelcome attention on the sacrosanct ground of tenure and aroused a predictable response. As one university professor notes, while KERA was infusing primary and secondary education with new funds, new ideas, and new goals, higher education in the state was hit with budget cuts and repeated criticisms.

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Importantly, an underlying tenet of KERA — performance standards — which has helped define reform of public and private institutions alike around the nation, is being applied to higher education in Kentucky. As required by Senate Bill 190, performance measurements are presently being developed for application to state-supported universities, a move that is expected to expand the role of the Council of Higher Education to one of oversight and assessment. The scope and the effectiveness of that scrutiny, however, will be determined by the performance standards which emerge. Most agree that, in any event, the scrutiny of state-supported universities will continue to intensify, as policymakers probe the management, utilization and outcomes of public investment.

During this difficult process of reorientation, a growing portion of the cost of higher education has been shifted to students, as costly “user fees” replace broad-based public support for higher education. The shift marks a dramatic departure from what Dr. A.D. Albright, the former president of two Kentucky universities, terms the long-standing unwritten policy that low tuition is the best student aid. As a result, universities which continue to rely heavily upon public dollars are becoming increasingly exclusive at a time when both economic need and the need for advanced education are acute.



While the state’s contributions to state universities and community colleges rose 59 percent over the past decade, from \$407 million in 1983-84 to \$647 million in 1992-93, the proportional share of revenues provided by the state declined. As illustrated, the state’s overall contribution to total revenues declined from nearly half (47 percent) to less than 40 percent over the most recent decade for which data are available. Nevertheless, the 39 percent share received by Kentucky’s state-supported institutions compares favorably with an estimated national

average of around 30 percent (Macadam). Some schools, like neighboring Ohio State University, for example, receive substantially smaller portions (23 percent for 1993-1994) of their budgets from state contributions.

While the public remains the majority shareholder in state universities, the base of support is broadening. Corporate donations are playing an increasingly prominent role in the financing of public institutions, an estimated 10 percent of the average annual budget of a large public university (Macadam). Some Kentucky university administrators contend that institutions in the state are frustrated in their pursuit of revenues from other sources by a mix of state regulations. Across the nation, students are shouldering an increasing share of the cost burden of running publicly supported universities, providing an estimated 20 percent of the average university budget. In Kentucky, the portion of revenues provided by tuition increased from 12 percent in 1983-84 to 16 percent in 1992-93, which compares favorably with the national average but continues to outpace national averages in its rate of growth.

In spite of increasing revenues, the rising pressure for higher quality instruction and expanded services has placed new demands on state universities, as state support has declined.

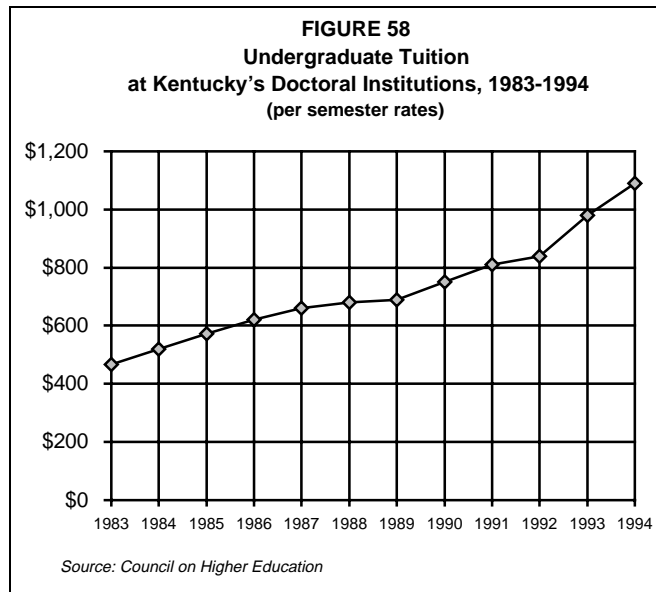
The resultant fiscal restraint has affected salaries, programs and services at state universities where investment in productive, widely recognized scholars has historically been regarded as key to the elevation of the status of programs and to the attraction of top students. A “brain drain” of inestimable extent has resulted. Over the past decade, numerous faculty have left for states where investment in higher education is more robust, and, as a result, morale and intellectual capital have declined in some programs. As universities engage in bidding wars aimed at luring high-profile scholars, programs have lost status and, in turn, lost top students.

As the need to gain access to Kentucky’s universities has expanded, the cost of access to those institutions has risen to exclusionary levels. As a result, the high skills = high wages formula now includes a subtext: high skills = high cost. For the many individuals and families who cannot meet the mounting cost, long-term student debt often provides the only means to access. A 1994 Census Bureau study found that more than half (51 percent) of students enrolled in U.S. colleges or vocational and technical schools during the 1990-91 school year obtained financial help from at least one source. While costs and levels of financial assistance varied widely, the average assistance received by students, according to the study, was \$2,919, while costs averaged \$2,653. Study authors Rebecca Sutterlin and Robert A. Kominski observed, “For many students, finding a way to finance post-secondary education may be as much of a challenge as the academic training they will have to master.”

Additionally, research shows that young people from low-income families, a population of which is expanding rapidly and has historically been underserved by our public schools, are far less likely to participate in higher education. As a consequence, the implied, if not fundamental, mission of state-supported higher education — that of providing equal opportunity to those who are qualified — has been undermined. Today, the economically advantaged enjoy disproportionate opportunity and benefits while the economically disadvantaged are far more

likely to incur long-term debt and to remain disadvantaged for a longer period of time, regardless of their qualifications.

Widely touted a “good buy” relative to other states and private institutions, tuition at Kentucky’s doctoral institutions nevertheless tripled over the 1980-1990 decade, outpacing the rate of inflation. As illustrated, tuition rates have remained on an upward trajectory into the 1990s. Adding to student costs, individual universities have levied user fees for libraries, laboratories, computer equipment, student health and other services,



many of which are now mandatory. Students at the University of Kentucky, for example, now pay a mandatory \$159 per semester in fees.

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While tuition at Kentucky's flagship university may be affordable by national standards today, trends suggest it may not remain so for long. In 1994, the average tuition at four-year colleges in the United States rose 6 percent — twice the rate of inflation. However, tuition rose 11.2 percent at Kentucky's doctoral institutions, 5.3 percent at regional universities, and 14.3 percent at community colleges. Yearly tuition at the state's doctoral universities (\$2,180) now stands at 81.2 percent of the national average (\$2,686) for four-year public schools. As illustrated, when examined in light of per capita income, the affordability of higher education in Kentucky declined over the past decade. While the affordability of higher education at a national level also declined relative to per capita income, it remained more affordable for most of the decade.

In spite of cost obstacles, enrollment at Kentucky's universities and community colleges has risen rapidly. As Dr. Nystrand notes, the percent change from 1985 to 1990 (32.7 percent) was more than 2.5 times the national average of 13.3 percent, but community college gains led

FIGURE 59
Higher Education Affordability Index
Kentucky and the US, 1980-1991

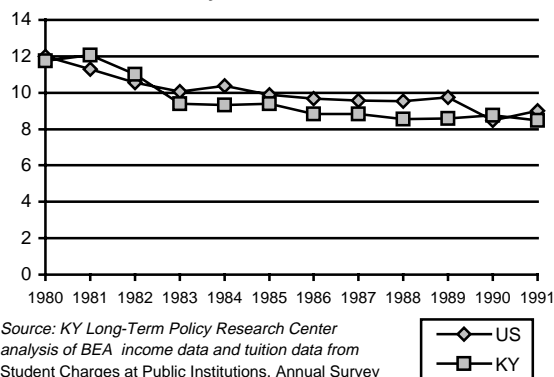
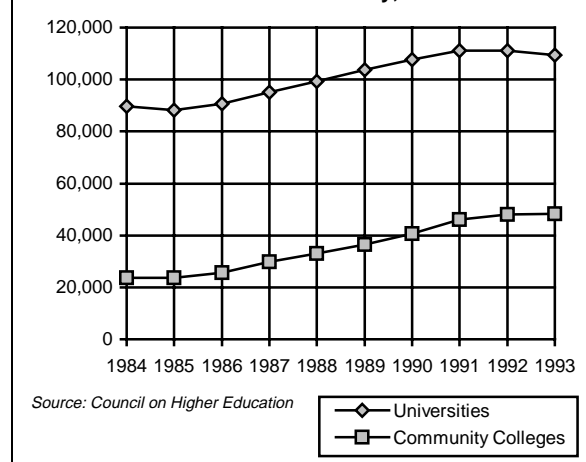


FIGURE 60
Enrollment at State-Supported
Institutions in Kentucky, 1984-1993



the way. From 1984 to 1993, university enrollment increased 22 percent (19,670 students), while enrollment at Kentucky's community colleges expanded dramatically by 104 percent (24,628 students), signaling a strong, multi-regional movement into higher education. Students from Kentucky comprised 87 percent of the total 1993 enrollment at state-supported institutions.

Enrollment increases, however, are also reflective of the alignment of university and community college missions and recruitment strategies with new realities. As the population of traditional students declines, universities and the community colleges are increasingly reaching out to non-traditional students through satellite

campuses like those the University of Louisville has established at the workplaces of Ford Motor Company, General Electric and Ft. Knox. Community colleges have begun to provide opportunities to take senior-level courses via interactive communication with state regional and doctoral universities.

The composition of the current student body reflects these changes. Both part-time and non-traditional students comprise an increasingly large segment of the student body. Part-time students at state universities, for example, increased from 35 percent of total enrollment in

1984 to 38 percent in 1993. Part-time enrollment at community colleges remained at 55 percent, which nevertheless represented a significant increase in the number of students, given escalating enrollment. At the same time, the number of non-traditional students, those age 25 and older, in state-supported institutions of higher education increased 58.7 percent and comprised a growing share of the overall student body, 41 percent in 1993 as compared to 36 percent in 1983.

Interestingly, the enrollment of female undergraduates and graduates continued to outpace that of male enrollment at every state-supported school in Kentucky. While women comprised 55 percent of total enrollment at state universities, female enrollment at community colleges stood at 65.5 percent of the total in the fall of 1993. Female enrollment levels ranged from a low of 55.6 percent at Hopkinsville Community College to a high of 75.9 percent at Maysville Community College.

While the broad movement of Kentuckians into higher education, regardless of age or gender, reflects a growing awareness of the need for lifelong learning and advanced skills, Kentucky nevertheless remains 48th in the nation in terms of the portion of the overall population that holds a Bachelor's Degree or higher. This enduring deficit is at once a reflection of the historic devaluation of education within the state and of the substantial out migration of young people that has cost Kentucky many of its best and brightest citizens. Ironically, Kentucky has educated a Nobel laureate, a Vice President, a Supreme Court Justice, successful business leaders, inventors, renowned writers and artists, achievers in virtually every arena, but the persistent lack of opportunity in the state often propels the best and brightest to other venues.

Many suggest that expanded but prudently managed investment in higher education will yield the long-term returns that Kentucky desires — a reversal of the brain drain and the gradual buildup of intellectual capital needed to change the course of the future. Indeed, the North Carolina experience illustrates the fruits of such investment, but those investments were made during an era of greater prosperity. The challenge before Kentucky is one of building quality and excellence, both in instruction and in the management of resources, at all levels of education, creating seamless junctures between them, and opening doors that have gradually closed the path to opportunity.

FUTURE IMPLICATIONS

The foundation of knowledge citizens need to prosper is rapidly being redefined and expanded.

As human resource potential exerts an increasingly strong influence on development, the imperative of creating a fully integrated system for educating and training the workers and citizens of today and tomorrow will continue to rise. Importantly, as Dr. Thomas Boysen has noted, it is the arena in which a state or nation has the power to do the most. It is one which will yield broad-based benefits, from the enrichment of decision-making about health, the environment, and leadership, to the enhancement of our appreciation of truth and beauty. A more educated citizenry will not only be better prepared to provide for themselves, but also to unite in common purpose for the future of Kentucky.

Clearly, we have made extraordinary advances and achieved remarkable consensus on the importance of education to our future. However, like most other states, we face the challenge of restructuring our educational system to remove unnecessary obstacles, increase equity, control costs while elevating quality and create a fully integrated system of lifelong learning

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that enriches lives and enables prosperity. In every arena, we will be challenged to do more, much more, with less.

Doing more may soon involve the long discussed need to restructure and lengthen the elementary and secondary school year. In its most recent appropriations bill for public education, Congress included \$72 million to create incentives for school districts to remain open 210 days a year or 30 days longer than is now typical. The structuring of school years around an agrarian economy has been outdated for decades, and proponents argue that shorter U.S. school years place the nation at a competitive disadvantage. Students in the United States, for example, spend less than half the hours students in Japan and Germany dedicate to core courses.

Elementary and secondary curricula are also likely to undergo redesign as more interdisciplinary approaches to learning are adopted in recognition of relationships between various subjects. A range of previously excluded subjects is likely to be incorporated, even as emphasis on the fundamentals increases. Increasingly, students will be challenged to use critical thinking skills to evaluate cause-and-effect relationships and solve problems. In Kentucky, promising initiatives designed to enhance understanding of the importance of citizen and voter participation and to expand understanding of the economy and the environment are being introduced. Values, ethics, conflict resolution and family relations are emerging topics for inclusion in the curricula of schools around the nation, as the need to strengthen families and communities rises. Other inclusions are almost certain to follow.

As the percentage of students from economically disadvantaged homes increases, the need to provide early to preschool programs will expand accordingly. Moreover, schools may be

By virtually every account, budgetary restraint and an escalating demand for accountability are likely to continue influencing the future of education at every level.

saddled with a difficult array of problems issuing from weakening family structures and strained economic circumstances. Pressure for after-school school programs is likely to mount as provisions for child care lag behind growing need.

By virtually every account, budgetary restraint and an escalating demand for accountability are likely to continue influencing the future of education at

every level. As KERA continues its drive to equalize funding, many formerly wealthy school districts may be forced to search for new sources of funding. As a consequence, increased taxes will be sought in many areas. Consolidation of some city and county districts may follow in areas where the gaps cannot be closed.

Some of the most dramatic changes ahead are likely to occur in higher education as budget constraints are likely to force a realignment of priorities. Among possible changes may be a movement to reduce personnel. The “restructuring” or downsizing underway in the private sector may characterize the coming redirection of universities, which is already well underway in some cases. Dr. Albright cites a two-decade-long buildup of personnel as a mounting cost factor that is likely to become a prime target for cuts. What Dr. Albright terms the “re-scoping” of universities may lead to the elimination, consolidation or movement of programs and funds to community colleges or vocational-technical schools and to personnel reductions. While few states have closed institutions or dramatically limited programs, Dr. Nystrand observes, there are notable exceptions. The future, he suggests, may hold more of such examples, as well as the emergence of partnerships between institutions and corporations, and a new relationship to elementary and secondary education. In Kentucky, higher education may enjoy a

significant cost advantage in years to come as more entrants are products of educational reform and the necessity of remediation is diminished.

Additionally, the pursuit of equal opportunity regardless of income, which propelled the reform of Kentucky's public elementary and secondary schools, may drive dramatic reform at the university level. While admission is unaffected by income levels, post-graduation debt is not. The issue of equity is expected to ascend on the public agenda, as higher education consumes a growing portion of the gross national product and the average family's income. Over the most recent decade, public university costs rose 27 percent while family incomes rose by only 15 percent. Protests at the University of Kentucky in the Fall of 1994 may mark the beginning of a more broad-based movement to halt and even reverse escalating tuition costs at Kentucky universities.

Some observers believe escalating tuition costs are fueling declines in enrollment, which were reported in 12 of 16 states responding to an annual survey by the American Council on Education. At the extreme is California, which lost 160,000 students between 1992 and 1993. California's experience, however, characterized by rapidly escalating tuition in the face of repeated budget shortfalls, may be the leading edge of a trend (Speer).

Publicly funded universities are likely to begin responding to pressures to make higher education more affordable with the creation of more three-year, fast track courses of education. Selected universities have already begun three-year programs, as well as courses of study that offer greater flexibility and credit for related work experience. In a November 1994 speech to faculty and students, University of Kentucky Chancellor. Robert Hemenway outlined goals for the university that included a proposed year-round full class schedule, earlier entrance into graduate programs and more three-year programs of study. Dr. Hemenway noted his challenge to the university, which included year 2000 goals for minority and female faculty, came in response to growing public concern about the missions and achievements of higher education (Muhs).

Similarly, widely publicized critiques of traditional medical school courses of study are focusing attention on the costly, cumbersome, research-oriented training physicians undergo, as a possible means to reducing health care costs. Broadly, the emphasis is likely to shift from static, once-in-a-lifetime training and education experiences, to a more fluid method of educating people, in which a broad foundation of knowledge is cultivated and continually revised and updated.

As in many other arenas, technology will likely fuel the most dramatic changes at every level of education, enabling children to learn at their own pace and, in the process, eliminating many difficult obstacles to instruction. Moreover, information technology will enable ready access to virtually unlimited information and ideas. Such broad exposure to information can be expected to dramatically expand the knowledge base of students young and old. Moreover, it will enable schools and training facilities at all levels to present state-of-the-art concepts, theories and findings, virtually eliminating the lag time that has historically characterized the transfer of information.

Community colleges and universities, which have already begun establishing electronic classrooms in Kentucky, will be able to provide instruction in remote locations through interactive technology. Ultimately, once an electronic infrastructure is in place, delivery costs may decline dramatically. Certainly, technological advances may eventually render past suppositions about the imperative of attracting top scholars obsolete, as access to the best minds in many fields becomes virtually unlimited for those institutions which possess the necessary technological infrastructure. Indeed, some have suggested the university may become obsolete, as technology fuels the abandonment of institutions and gives rise to new methods of training and educating people.

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As the need for post-secondary education expands dramatically, it will also be necessary to determine with more precision where private sector responsibility ends and public sector commitment begins. Clearly, great gains can be made through public-private partnerships and through public coordination and facilitation of private efforts, such as workforce training consortia. Ultimately, however, policymakers who are confronted with an expanding list of responsibilities to be accomplished with diminishing resources may be confronted with the need to leverage greater employer responsibility for training, education, and retraining of displaced workers.

For institutions of higher education, relevancy is likely to become a measure of validity and, for some, an indicator of survival. As the Wingspread Group on Higher Education concluded in a 1994 conference report, progress or change in higher education is being impeded by isolation from the larger community; broad recruitment policies matched with exclusionary practices; and, by public dismay over research before teaching and the imbalance between product and cost (Otterbourg). The greatest challenge before universities and colleges, from the perspective of this evaluation as well as many others, will be the restoration of public and policymaking confidence through expanded service and contribution to the needs of citizens beyond the often intangible yet broadly beneficial outcomes of higher education.

This same demonstration of relevancy will be required of the system we fashion for meeting the educational needs of the citizenry of the state and nation. As Carson E. Smith, Executive Director of Policy and Management for Kentucky State University has suggested, the foundation of knowledge that citizens need to become productive, prosperous members of society is rapidly being redefined and expanded. As a consequence, the nation's commitment to public education is no longer adequate to meet the needs of its people. Ultimately, policymakers will be challenged to restructure public commitment, and citizens — private and corporate alike — will be asked to make the necessary sacrifices to create the seamless, lifelong system we are fast coming to view as critical to economic survival and strength.

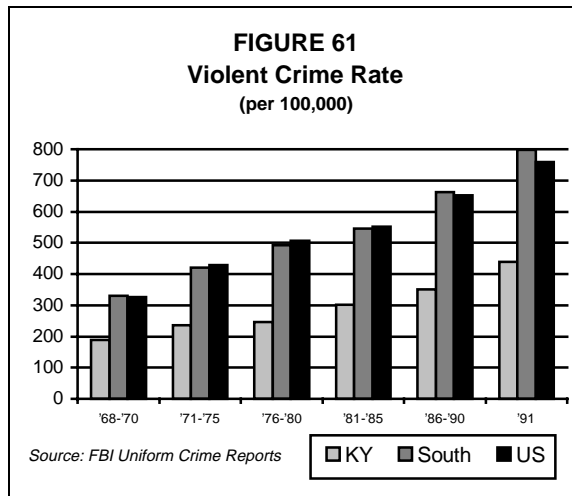
RESPONDING TO CRIME

Researchers offer conflicting analyses of crime data, even as public opinion surveys record deep alarm about its presumed expansion. Because we live in an era when the graphic details of grisly crimes routinely inhabit our living rooms and, in turn, our consciousness, it is difficult to find comfort in data. Nevertheless, some researchers have concluded that violent crime is not escalating, contrary to widely held assumptions. Instead, they suggest, our response to crime — the criminalization of more acts, particularly drug offenses, increased reporting, more accurate data collection, and more effective responses — have combined to create the impression of an exaggerated increase in crime. The 1992 National Crime Victimization Survey conducted by the U.S. Department of Justice, found, for example, that households that had experienced violent crime actually declined from 5.8 percent in 1975 to 5 percent in 1992. The survey also found that 23 percent of U.S. households had been victimized by a crime of violence or theft in 1992 — the lowest percentage recorded since 1975 when these data were first collected. Clearly, however, recorded crimes, arrests, trials, prison populations and costs are escalating.

While research continues to offer different assessments of the extent of crime, the fear of crime has escalated and, in turn, created significant public pressure for an appropriate response. Sometimes acrimonious political debate about that response — the appropriate mix of prevention and punishment — has emerged. This ongoing and difficult struggle to control, prevent and appropriately punish crime while preserving a fair and equitable system of justice will continue in the decades to come, even as the nature of crime changes and our understanding of it is expanded.

CRIME IN KENTUCKY

While only a fraction of regional and national rates, violent crime appears to be rising in Kentucky.



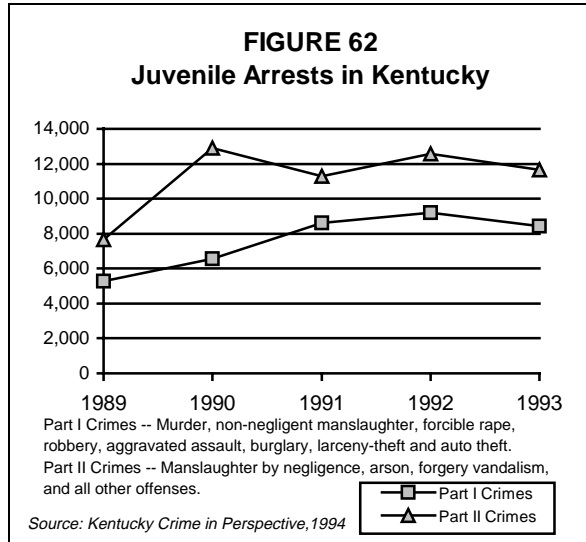
While Kentucky's crime rate remains low relative to the South and the nation, recorded incidents of violent crime are nevertheless rising, according to *Uniform Crime Reports* compiled annually by the FBI from data provided by state law enforcement agencies. As illustrated, the U.S. violent crime rate more than doubled between 1968-1970 and 1991, rising from 326.6 recorded crimes per 100,000 population to 758.1. In Kentucky, violent crime also more than doubled during this 23-year period, from 188.3 crimes per 100,000 population during the 1968-1970 time period, to 438 in 1991. How-

ever, Kentucky's violent crime consistently trailed that of the nation and the region. By 1991, violent crime in Kentucky stood at just over half the average for the South and the nation as a whole. Importantly, during the same period, 1968-1991, property crime in Kentucky fell from 84 percent of the regional rate in 1968 to 52 percent in 1991.

More sophisticated data collection, however, is playing a prominent role in our sense of crime's escalation. From 1982 to 1991, for example, violent crimes, including murder, rape, robbery and aggravated assault, rose more than 61 percent, according to the Kentucky State Police (KSP). These data, however, are products of a newly automated reporting system developed in the late 1980s, which permits a more accurate assessment of crime in Kentucky, according to the KSP. Kentucky State Police caution that the "increase" these data show is partially a result of this improved data gathering process utilized by law enforcement agencies and the court system. The state crime rate is derived from reports to the KSP by local law enforcement agencies.

Available data also suggest that serious juvenile crime in Kentucky parallels what's believed to be an alarming national trend. Nationally, the number of juveniles arrested for serious crimes, including murder, rape, aggravated assault, burglary and auto theft, rose at an average annual rate of 10.5 percent between 1988 and 1992. Changes in reporting procedures do not permit reliable comparison with Kentucky data over the same time period; however, more recent data strongly suggest an escalation of juvenile crime.

Between 1990 to 1993, the number of juveniles arrested for serious crimes in Kentucky rose at an average annual rate of 8.8 percent. The fastest-rising serious juvenile crimes were robbery, aggravated assault, murder and non-negligent manslaughter — all violent crimes. Serious property crimes also increased, albeit at slower rates. Property crimes constitute the majority of serious juvenile crime. Of the 8,441 juveniles arrested for serious crimes in 1993, 7,028 were arrested for burglary, larceny theft and auto theft. Despite increasing serious crime among juveniles, the number of arrests for less serious offenses, including disorderly conduct, possession of stolen property, drug law violations and public drunkenness actually fell from 12,897 in 1990 to 11,667 in 1993.



EXPANDING PRISON POPULATIONS

*Over the past 20 years, the rate of incarceration
has increased 233 percent in Kentucky.*

As our response to crime intensifies, U.S. prison populations have ballooned. In 1992, the U.S. Department of Justice reported that the rate of growth in the U.S. prison population demanded an additional 1,143 prison beds per week. U.S., regional (South), and state prison populations have continued to increase steadily in recent years; however, Kentucky's annual rate of growth in prison population slowed between 1987 and 1992. By the year 2000, the state's prison population is projected to increase five-fold from its 1970 prison population of 3,000 to 15,000 inmates. In 1973, the state incarcerated 90 persons for every 100,000 people. By 1992, that number had risen to 300 per 100,000 — a 233 percent increase in 20 years (Justice Cabinet).

In addition to an apparent though uncertain rise in the state's crime rate, the Kentucky Justice Cabinet cites several factors that have figured prominently in the increasing prison population. They include the passage of minimum sentencing provisions, increased felony penalties, new law enforcement initiatives such as the "War on Drugs," a shift in public sentiment favoring tougher penalties, and changes in parole rates. These forces have combined to send more offenders to prison and keep them incarcerated for longer periods of

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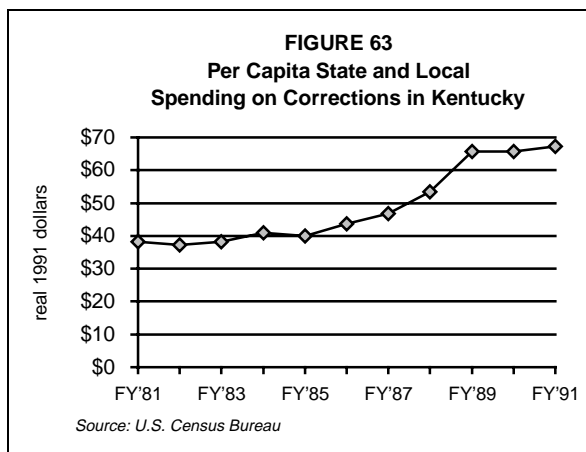
time. Similarly, a 1993 study by University of Michigan economists John Bound and Scott Boggess concluded that four-fifths of the growth in U.S. incarcerations was attributable to the increased likelihood of receiving prison terms, rather than rising crime rates. Based on examinations of the FBI's semi-annual *National Crime Survey*, these economists concluded that crimes against people had fallen 27 percent between 1979 and 1991, while the number of men and women serving prison terms had increased 126 percent (Otten).

The increasing number of juvenile offenders, many of whom are being convicted of serious crimes, is also placing growing pressure on institutions for the provision of expanded services for inmate populations, including increased educational opportunities, substance abuse programs and family counseling. Substance abuse programs, which will soon be required of all correctional facilities in the state, are believed to be especially important, as research continues to establish a strong link between drug use and crime. These programs, according to the Kentucky Justice Cabinet, utilize individual and group counseling, as well as innovative treatment approaches. Educational opportunities permit juveniles to continue their education and, in turn, improve their prospects for employment after release, as well as alleviate feelings of hopelessness upon re-entry into society. Family counseling is also widely viewed as extremely important, as rehabilitated youth are believed to face dismal chances of survival in an unchanged family environment.

Along with growing ranks of young people in the prison system, Kentucky will see an increase in the number of older offenders, many of whom may spend the rest of their lives in prison. The challenge of providing for elderly prisoners is expanding with the imposition of stiffer, longer sentences and changes in parole rates. The aging of the prison population will require correctional institutions to enhance and increase the array of medical and other services available within their facilities. Programming and security will also have to be re-designed, according to the Justice Cabinet, as long-term offenders, with little or no incentive to abide by institutional rules, comprise an expanding component of the prison population.

EXPLORING ALTERNATIVES

The rising cost of incarceration is challenging policymakers to discover and implement alternatives to prison.



Dramatic growth in the state's prison population has resulted in the consumption of increasingly large shares of the public pie to meet the cost of corrections. The average annual current cost per inmate in Kentucky's prisons rose 44 percent (in inflation-adjusted dollars) between fiscal year 1980 and fiscal year 1992 (Governor's Commission on Quality and Efficiency). As illustrated, per capita spending on corrections in Kentucky rose sharply over the 1981-1991 decade. In response, pres-

tures for sentencing reform, for more appropriate responses to violent and non-violent crimes, are rising.

As an important starting point, Kentucky's criminal justice system has begun to explore alternatives to traditional litigation. Kentucky's district courts, for example, now handle more than 800,000 cases a year, which often experience delays due to inadequate resources (Billingsley). As an expedient alternative to the system, many individuals are seeking arbitration and dispute resolution, rather than pursuing solutions in the courts.

The fiscal burden brought on by additional cases and convictions is also compelling the courts to search for alternatives that will not only allow adequate space for the incarceration of violent and repeat offenders, but also the rehabilitation, education and re-socialization of lesser offenders. In addition to preparing offenders for re-entry as productive citizens, many of these alternatives are expected to be less expensive than long-term incarceration. Cost-saving trends in sentencing currently being studied or utilized in Kentucky include boot camps for youth offenders, privatization of minimum security prisons, contracts with jails and halfway houses for extra beds, community labor, work release and home incarceration programs. Property and drug offenders will be the principal participants in these programs, as prison space is prioritized for violent and repeat offenders, according to the Justice Cabinet.

Unfortunately, fiscal limitations constrain the availability and the utilization of many of these alternatives. For example, only the state's larger urban communities have had the resources to staff community labor programs. And, while district courts hear 90 percent of the cases tried in Kentucky, they lack sufficient statutory authority for the creation and administration of additional community labor programs, as well as the probation or parole officers needed to monitor defendants sentenced to work release programs and home incarceration (Billingsley). In fiscal year 1992, the supervision of parolees and probationers cost \$3.34 per day per individual (Governor's Commission on Quality and Efficiency), a substantially lower cost than incarceration.

Due to a prohibition in the state constitution regarding felony offenders in state institutions and contract facilities, work release programs are not an option for felony offenders in any of Kentucky's correctional facilities. Instead, community service centers are more common throughout the Commonwealth. As of August 1994, these centers housed 1,400 inmates, 98 percent of whom are involved in community service activities. Housing is provided under contract with jails and halfway houses, which affords the state a substantial degree of flexibility in dealing with the felon population. Beds can be contracted on short notice to match the needs of a fluctuating convict population without incurring construction costs. In August 1994, there were 1,217 beds under contract in jails and halfway houses and 656 vacancies.

Jefferson County is one of the few counties in the state to utilize home incarceration to ease crowding in its prisons and jails. Home sentences can extend up to 365 days, during which time the individual's location is monitored electronically via wrist and ankle bracelets. Participation is limited to non-violent offenders, more than 400 of whom are being monitored under Jefferson County's home incarceration program.

In response to rising crime and its attendant costs, Fayette County has formed a Criminal Justice Commission to study and recommend a strategy for revamping its system-wide response to crime. The Commission is currently considering the implementation of programs that will not only save costs, but also help provide educational and occupational opportunities while easing prison overcrowding and providing additional space for juvenile offenders. One program under consideration is an adult supervision center which would increase inmate productivity during incarceration. In addition to requiring participants to complete their education, the center would also require offenders to be employed and to

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remain drug- and alcohol-free. The proposed center would be open 24 hours a day, and participants would even be allowed to go home for the night, during which time they would be monitored electronically through skin implants that would measure distance from their home telephone. Participants in the program who violated rules would be promptly returned to jail. Funding for the center would be sought from federal grants, including new money made available under the 1994 crime bill. The program would cost an estimated \$10 to \$15 a day per inmate, as compared to \$30 to \$40 a day for incarceration in a jail, and many participants would be required to pay their own way. If implemented, this would be the first center of its kind in Kentucky (Honeycutt).

The Fayette County Commission is also charged with finding viable solutions to jail overcrowding and discovering ways to break the cycle of repeat offenders. A current proposal under review calls for the conversion of an existing adult jail into a maximum security juvenile facility to ease overcrowding and permit federally mandated separation of serious and minor offenders. An evening center would be developed to offer educational programs and drug testing as an alternative or follow up to detention. Again, this program could be coupled with home detention and electronic monitoring (Honeycutt).

Also under review by the Commission is an early release program for non-violent offenders, which would go into effect when the inmate population exceeds capacity. In order to qualify for early release, an inmate would have to: serve a sentence of 30 days or more; have no current or previous conviction of a crime of violence, sexual assault, spouse abuse or stalking; serve at least half of his or her sentence; and have no prior release under these provisions during the past 12 months (Honeycutt).

Nationally, youth boot camps have been heralded as an antidote for rehabilitating juvenile offenders. More than 50 are now in place in 39 states. The \$3.6 billion federal crime bill passed in 1994 provides funding for the construction of more of these youth correctional facilities. Boot camps have been widely praised, not only because they are less expensive to run than jails, but also because they offer programs aimed at reducing recidivism, including education and job skills training, they emphasize discipline, and they offer alternative, shortened sentences options. While boot camps may offer a positive alternative to prison, no evidence that these camps modify criminal behavior or attitude has emerged. Instead, recent studies have shown that as many as half of the participants are dismissed, drop out or are returned to regular jails. Among those who do successfully complete the program, recidivism rates are not significantly lower than those coming out of traditional correctional facilities (Heldman).

Many argue that prevention offers the best remedy to crime, that we must reach youth before boot camps become a consideration. The Massachusetts SCORE (Student Conflict Resolution Experts) program, for example, sponsored by the state's General Assembly, trains middle and high school students to deal with conflict situations and avoid violence through dispute resolution techniques. Since its inception three years ago, 96 percent of the 500 disputes mediated by students have resulted in written agreements. A pilot mediation program has also been introduced in juvenile centers to encourage offenders to perceive mediation as a viable alternative to violence (Criminal Laws Bulletin).

Aside from alternative sentencing, the provision of competent, thorough representation of defendants by public defenders offers a viable means of reducing prison populations. Court appointed legal counsel must be provided to all indigent defendants who request it. Currently, more than 100,000 cases throughout the Commonwealth are being litigated by public defenders. However, Kentucky's public defender system has been strained to the point of collapse by rising caseloads and chronic underfunding, a problem which is being exacerbated by stricter laws and enforcement. In 1993, a special task force on the state's public defender services found that each public defender case, ranging from traffic viola-

tions to capital murder, was financed with only \$125 in government funds, \$118 less than the national average of \$243. This figure places Kentucky last in the United States in funding for a system of public defense. In an effort to enhance funding, the 1994 General Assembly passed a law requiring a one-time legal fee of \$40 and increased the service fee for driving under the influence by \$50, earmarking the funds for the Department of Public Advocacy.

The task force also found that certain public defender programs around the state, particularly those in Fayette and Jefferson counties, have caseloads four to five times acceptable national standards. The majority of these cases are litigated by contract attorneys. Due to the low, and often inadequate, compensation provided counsel, it is believed to be difficult to attract and retain competent attorneys. The task force also found that only 34 of Kentucky's 120 counties currently contribute to the cost of local public defender systems, contributing to gross inequities between counties and, in many cases, precluding the provision of fair representation by competent counsel (Governor's Task Force, 1993).

TECHNOLOGY'S IMPACT

Technology offers new ways to monitor crime and criminals.

Rising crime rates and increasing costs will be partly ameliorated by technological advances, which will assist the courts, law enforcement and corrections. Police information systems, such as automated fingerprinting identification and computer-assisted dispatch, are expected to ease police investigations of crimes. According to the Administrative Office of the Courts, a computerized case processing system called SUSTAIN is now being used to monitor and document ongoing cases within the trial courts. Once a case has been disposed, the file is closed but the information remains accessible on the local and mainframe computer. The system, which is currently in use in 106 counties, also schedules court dates and produces calendars for judges. All 120 of Kentucky's counties were scheduled for connection to this service by the end of the 1994 fiscal year.

Today, several correctional institutions are experimenting with robotics as a means of reducing staff requirements. The greater use of sophisticated, indirect surveillance technology will also reduce the number of officers needed to maintain security. However, a significant drawback to this type of technology is the reduced human contact between inmates and correctional staff, the consequences of which have yet to be determined.

Among the more advanced uses for technology under consideration are infrared and magnetic resonance imaging to detect contraband; advanced physiological assessment to measure pupil movements and voice patterns to detect drug usage; and even electronic implants in probationers and parolees to improve surveillance (Justice Cabinet). The electronic monitoring implants are an integral part of the proposals currently under review in Fayette County.

The state's criminal justice system also stands to benefit tremendously from the development of Kentucky's Information Super Highway (I-Way). In its initial efforts to establish the I-Way, the Kentucky Department of Information Systems has begun to eliminate multiple data communication lines that each county courthouse has for automobile registration, court records administration and criminal justice. The separate communication lines are being replaced by the expansion of the Commonwealth Integrated Network System to 12 network access points in major cities throughout the state (Department of Information Systems). When in place, the I-Way will enable the creation of a statewide criminal justice information system, which the KSP cites as a critical need.

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In addition to the adoption of new technologies, Kentucky's law enforcement agencies must prepare for changing types of crimes. Two major studies in recent years suggest that traditional crime may decline by the turn of the century, in part because of changing demographics. It will be replaced by more sophisticated white-collar crimes, particularly ones which will thrive in an environment of deregulation. Furthermore, these studies agree that the social service function of police will become more important, and law enforcement will become more community-oriented, with increased citizen involvement and oversight. The community-oriented approach will be especially important in dealing with long neglected inner city neighborhoods. Police are expected to become an integral part of the community-building process in the quest for safer neighborhoods (Bizzack). An example of this commitment is demonstrated in a new program called REVIVE (Removing Elements of Violence by Instructing Victims Effectively) which will be implemented in Lexington in 1995. The Kentucky State Police is also utilizing multi-agency, multi-disciplinary task forces like the Governor's Marijuana Strike Force and the Kentucky Multi-disciplinary Committee on Child Sexual Abuse as alternatives to conventional methods (Justice Cabinet).

FUTURE IMPLICATIONS

Public alarm about crime is garnering increasingly brutal responses, many of which have no empirical foundation.

Rising public pressure for more fiscal accountability will compel government to develop informed, appropriate strategies that will yield long-term benefits — reductions in crime and responses to crime that discourage repeat offenses. While the work of the criminal justice system is made easier in Kentucky by traditionally low crime rates, fiscal pressures and new technologies are pushing the system to change traditional policies, methods and organizations, to better serve the citizens of Kentucky in the 21st Century.

Our aging population and the ready availability of technology are expected to gradually move more crime off the streets and into the white-collar realm of information technology, where the manipulation of data, capital and transactions is expected to increase. As in every arena, more and more sophisticated and creative responses to crime and its consequences will be required. In the coming years, a vast array of technology will improve and enhance the effectiveness of the state's and the nation's criminal justice system and, at the same time, raise difficult privacy issues.

In the coming years, the criminal justice system, like other components of government, will face increasing budget constraints, as it is challenged to do more with less. In response, attention to alternative sentencing strategies and the reduction of recidivism rates can be expected to increase. The growing incidence of juvenile crime, as well as the expanding population of long-term, aging inmates, will pose increasingly complex problems that will challenge our responses to crime and push the limitations of today's prison systems.

Importantly, many observers are questioning the underlying rationale for the continued development of a massive corrections infrastructure, which is consuming vast public resources. This buildup has been accompanied by the development of special interests, such as California's powerful prison guard lobby, who benefit directly from public investment in prisons (Macallair). Public alarm is yielding increasingly brutal, often sensationalized political responses to crime, many of which are without empirical foundation. In turn, public investment in education and human services, both of which serve as a forceful counter to crime, are being undermined. Because Kentucky's crime rate is low, we have the opportunity to anticipate the possibility of future changes and shape an effective and humane crimi-

nal justice system that will ensure wise investment of public resources and reflect a solid foundation of knowledge.

BUILDING SOCIAL CAPITAL

One need not venture far to read or hear of the growing alienation of the American public, as evidenced in what might be termed a collective disengagement from community and civic life. Far fewer people, it seems, join together for purpose or for pleasure. As a consequence, most agree, each of us has lost an extraordinarily powerful force in our lives. Some call it community; others, namely Harvard Professor Robert Putnam, have labeled this nebulous but seemingly essential force social capital. Without it, Putnam's research finds, we are less likely to prosper and solve the social and economic problems we confront. Conversely, Putnam's research suggests that civic engagement is a powerful, transforming force that extends the limits of human and physical capital, as well as the realm of possibilities. Increasingly, both rigorous research and common sense confirm that our ability to recapture community and build social capital will determine the measure of our progress.

The finger of blame for declining civic engagement or social capital is aimed in various directions. Some are quick to point to television, which has become a central and anesthetizing focus in the lives of many families, providing vicarious involvement in public affairs, as well as an artificial sense of community. Others point to the two-wage earner family and the vastly diminished role of women in the volunteer community. Research also suggests that men *and* women simply have less time to give to interests outside the immediate concerns of work and family, as work lives consume more of the time that might have otherwise been devoted to social and civic activities. For many, work provides the only sense of community. And, while many workplaces encourage civic and volunteer contributions, few provide rewards or paid leave as an incentive.

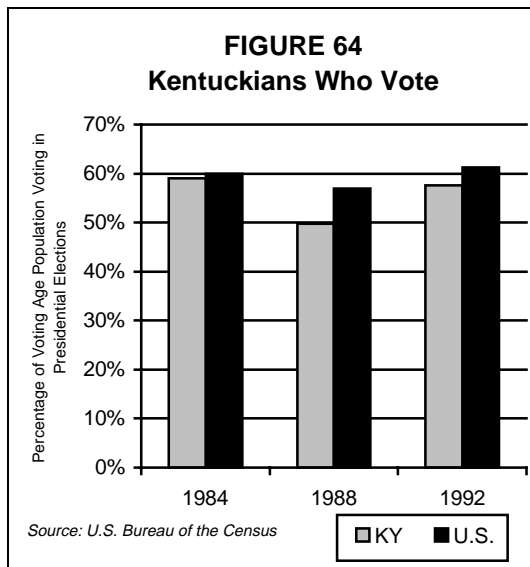
University of Pennsylvania Professor Kathleen Hall Jamieson is prominent among a chorus of observers, with whom the public appears to agree, who blame the news media for its cynical attention to the artifice of politics, to the exclusion of political idealism. A Fall 1994 Times Mirror Center poll found that Americans believe the news media "have become a powerful, destructive force, inflaming the national mood of anger and political alienation (Cannon)." Dissenting voices suggest that, instead, the messenger is being blamed for the bad news that regularly surfaces on the pages of newspapers and the screens of televisions, news about which readers and viewers tend to generalize. Moreover, the media's current low public standing is comparable to that enjoyed by a host of once venerable institutions, which, futurists observe, are rapidly being abandoned.

Importantly, the public's waning confidence in institutions is also tied to the discomforting, often disturbing, change that attends contemporary life. For many, the psychological moorings of the past, work and family, are less certain, if not completely, undone. Consequently, a measure of *ennui*, fear and generalized anger, is now part of the consciousness of many adults. In this milieu, the frailties and failings of public officials and government in general often serve as validation of cynicism, rather than a call to action.

The extent to which Kentuckians are likely to become engaged in the civic life of their communities and the governments which serve them is influenced by a number of cultural and social forces. Dr. Rona Roberts, a partner in the Lexington-based consulting firm, Roberts and Kay, cites four characteristics that have historically influenced social capital in the

Commonwealth: independence, neighborliness, a preference for the spiritual over the material, and greed. Outside of greed, which has only propelled retreat from public life, Dr. Roberts observes, the influences on social capital are complex. While the characteristically independent spirit of Kentuckians often undermines collaboration, it also informs the belief that problems can indeed be solved at the local level. Similarly, neighborliness is a strength of Kentuckians that enables unity but sometimes underlies regionalism or, as some have suggested, “countyism,” a peculiar limitation that narrows the concerns of otherwise caring citizens to what lies within county lines. Finally, Roberts observes that the preference for the spiritual over the material, which is so evident among Kentuckians, has elevated compassion and concern for human and community needs in Kentucky. In the past, however, many Kentuckians, she suggests, have turned the other cheek and sought recompense in faith and family, rather than resist exploitation. As a consequence, what Putnam terms the “cultural template,” which is formed by a community’s or a region’s history of civic engagement, is, in the consciousness of many Kentuckians, one of powerlessness and defeat.

The importance of replacing such negative cultural templates with positive ones cannot be overstated, Putnam finds. While the process of building social capital is slow and incremental and the foundation for civic engagement reaches deep into the history of a region, virtually any horizontal network that serves as a vehicle for positive engagement, from churches, to neighborhood associations, to the collection of men and women who routinely gather at courthouses, restaurants and other community centers, increases a community’s bank account of social capital. In order to build this account, Peter Hille and Lisa Lewis Raymer of the Brushy Fork Institute in Berea suggest that a shared goal for Kentucky’s future must be one of helping communities move upward on a continuum of citizen participation to a break-over point where success begets success. Government must as a matter of routine turn to citizens for guidance, direction and support, if it hopes to build the social capital on which successful development depends.



While hopeful signs of rising engagement can be detected in the civic life of Kentucky, many community activists observe that, for a variety of reasons, civic engagement is inadequate and, therefore, self-limiting. Social capital, Putnam finds, begets social capital. The most obvious manifestation of its inadequacy in Kentucky is seen in voter participation, which, as illustrated, has lagged well behind the national average during the past two presidential elections, and in declining membership in a range of civic and social organizations that have historically strengthened communities.

Even our commonplace assumptions about citizens who do not vote, however, have been diluted in Kentucky by the findings of “None of the

Above: *Alienated Citizens Talk Back*,” an October 1991 survey of nonvoting citizens in Fayette County. According to University of Kentucky political science professor, Dr. Ernest Yanarella, instead of being alienated, passive and uninformed, non-voters often reported feeling deeply, even passionately, about political issues. If anything, many of these

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disaffected nonvoters seemed to care too much, to have withdrawn from a system whose representatives they perceived as having disappointed and even failed them. Outside of voting, many reported being active participants in the civic life of their communities.

Evidence of emerging social capital in Kentucky, however, is demonstrated in the presence of more than 14,500 nonprofit organizations in Kentucky, a sign of emerging grassroots strength and what Liz Natter, director of the Local Governance Project, calls a “trickle-up” approach to problem solving. Rather than being abandoned altogether, institutions appear instead to be undergoing dramatic decentralization. Their influence, however, has extended statewide, as they have proven to be a powerful force in shaping economic development and environmental policies, reforming Kentucky’s schools, bringing greater democracy to local government, and providing a range of direct services where they are needed. Moreover, the cumulative result of leadership development programs and successful citizen action aimed at specific goals is gradually shaping a new model for development, particularly in rural communities, one that issues from the bottom up, rather than the top down. School-based decisionmaking councils are also offering an important training ground for broader involvement in community and state affairs. Importantly, Putnam notes, “Scores of studies of rural development have shown that a vigorous network of indigenous grassroots associations can be as essential to growth as physical investment, appropriate technology, or . . . ‘getting prices right.’”

At the same time, new workplace philosophies have made more and more people conversant in the language of empowerment, team building, leadership development and joint ownership. Gradually, this new, yet fundamentally democratic paradigm, which has leveled management hierarchies and diffused power throughout organizations, is influencing the quality and the conduct of governance. Indeed, the Governor’s Commission on Quality and Efficiency advocated the advancement of these principles within state government to raise the quality of government services through higher investment in and higher expectations of public servants.

A number of national trends which are exerting their influence on Kentucky also bode well for the future of civic engagement. As the most recent presidential campaign demonstrated, Americans are keenly interested in information, which has historically been tightly

controlled and used as a measure of power. As the demand for information intensifies and the knowledge base expands, the future of political dialogue may become more substantive though recent political campaigns have offered little evidence of such movement.

Public hearings and town meetings are also becoming familiar outposts on the American landscape, as they gradually become an institutionalized policy-

Public hearings and town meetings are becoming familiar outposts on the American landscape, as they gradually become an institutionalized policymaking requirement, without which the work of governing is increasingly viewed as incomplete.

making requirement, without which the work of governing is increasingly viewed as incomplete. Additionally, the notion of building consensus and developing a shared vision for the future is being widely adopted by governments and their agencies. As these trends evolve, they will gradually reach deeper and deeper into communities and, in turn, more accurately reflect the vision and the goals of the people government serves.

When asked what obstacles block citizen participation in Kentucky, participants in a Kentucky Long-Term Policy Research Center workshop on citizen participation observed that citizens feel used by politicians who seek their vote but not their input into policymaking. As a result, it was observed, many citizens who are informed and thoughtful do not feel as though they are partners in their government. Additionally, participants suggested that a “closed-door,” top-down approach to governance and a “spoils system” of service based on patronage had alienated many citizens. Because citizens believe their participation will make no difference in the quality or conduct of government, they withhold it.

Putnam’s landmark work underscores the vitally important role that civic engagement plays in economic development. The regions of northcentral Italy that Putnam and his colleagues studied over an extended time period “did not become civic because they were rich. They became rich because they were civic.” Closer to home, Tupelo, Mississippi, serves as an illustration of the power of social capital in transforming an economy. According to Dr. Vaughn Grisham, a nationally recognized expert in community development and Director of the McLean Institute at the University of Mississippi, Lee County, Tupelo’s home, moved from being the poorest county in the state in 1940 to its current position as the second richest one, based on per capita income. This dramatic transformation, Dr. Grisham observes, was propelled by newspaper publisher George McLean’s commitment to building relationships between people in the community. Partly forged in New England-style town meetings aimed at setting community goals, these relationships proved to be a far more powerful force in economic development than the well-connected city fathers of Tupelo had ever been. Leadership, asserts Dr. Grisham, is about relationships — not what happens at the top. In order to enable its development, we must shed the ideology of superiority based on class, money, race or gender, and begin building horizontal networks — social capital.

Rick Smyre, a former textile industry CEO and President of Strategic Concepts, Inc., who has helped shape the Communities of the Future program at Western Kentucky University’s Institute for Economic Development and Public Service, offers similar conclusions about development. Communities that are progressing, observes Smyre, are characterized by leaders who are open to new ideas, by networks instead of hierarchies, and by pools of what he terms “process leaders,” men and women who understand the facts, enjoy the trust of citizens and are committed to teamwork. The future, he suggests, will witness a movement from representative to consensus democracy, in which, rather than make decisions unilaterally, leaders will facilitate decision-making and look to a broad base of citizens to set the public agenda.

Smyre’s vision of effective future governance and Dr. Grisham’s real world illustration of dramatic success built on a stock of social capital both hinge on trust. “A society that relies on generalized reciprocity is more efficient than a distrustful society . . .” Putnam observes. “Trust lubricates social life.” As any manager or public official who has ventured into new, more democratic territory will attest, trust is the essential ingredient in positive, constructive change. In order to capture the generous payoff social capital offers, leaders must invest heavily in gaining the trust of those whom they ask to join in the work of building progress. And, in an environment where mistrust has historically characterized a relationship, trust must be painstakingly earned through consistent, forthright actions. Workers must believe that managers and corporate officers want what is best for them, as well as the company, just as the citizens of Kentucky must believe in government’s commitment to public good. Reinforcing that belief, that fundamental trust in government will require aggressive, consistent efforts to engage and involve citizens at every level in problem-solving, policymaking and planning, as well as an unyielding commitment to ethical conduct at every level of government. Research strongly suggests that our ability to seize

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new opportunities and overcome the legacy of persistent poverty, lagging personal income and inadequate opportunity will depend upon the abilities of leaders to cultivate and enable leadership at every level.

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